

Portable Demo

v.2.0

Technical Specification

Acknowledgements	
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Introduction

The Portable Demonstration is a software tool showing how the EPC network works in real supply chain conditions.

This tool mainly serves presentation and educational purposes.

It can be downloaded from the BRIDGE website (<http://www.bridge-project.eu/>) in the “Public Deliverables” section.

The software should be installed on one or several computers. One computer would simulate the server (and possibly a client) while the others would simulate the clients such as the manufacturer, the distributor and the final client e.g. retailer.

The Portable Demonstration also supports any number of physical readers simultaneously. A virtual reader is available and can be used in case there is no physical reader connected to the system or if there is a need to use both virtual and physical reader at once.

While the demonstrator has the opportunity to input real company data, the Portable Demonstration includes 3 business locations and 4 standard pallets allowing a fast demonstration start. This default demonstration scenario also allows the use of 4 workstations and the virtual reader.

The Technical Specifications document you have in your hands describes how to configure the necessary IT infrastructure and how to best run the demonstration for the audience.

Questions, feedback and comments should be addressed at info@bridge-project.eu

Table of contents

Table of contents	3
Installation requirements	5
Minimum hardware requirements.....	5
System requirements	5
Network installation requirements.....	5
Installing the software	6
Configuring the server.....	7
Selecting the interface language.....	9
Configuring RFID readers	9
Configuring the client	13
Advanced network configuration (PDServer.exe.config file - for the server, and PDClient.exe.config - for clients).....	15
Preparing data for the demonstration.....	16
Modifying the demonstration scenario.....	16
Using the GS1 identifiers converter	19
Starting the demonstration	21
Demonstrating EPCglobal network functionality.....	22
Licence	34
Appendix A: Programming RFID Tags using CAEN A948EU reader.....	36
Appendix B: Programming RFID EPC Gen2 tags using SAMSys MP9320 v2.8e reader.....	39
Appendix C: Programming RFID Tags using SICK RFI641 reader	43
Appendix D: Programming RFID Tags using Impinj Speedway UHF Gen 2 reader.....	46
Appendix E: Programming RFID Tags using Sirit INfinity 510 reader.....	48
Appendix F: Programming RFID Tags using Intermec IF61 reader	51
Appendix G: Troubleshooting	54
Appendix H: Creating a custom RFID reader plugin.....	56

Create a new project.....	56
Add reference to the interface	56
Write the code for handling the RFID reader	56
Build and install the library	57

Installation requirements

Minimum hardware requirements

PC incl. Pentium III 1000 MHz or higher, RAM 256 MB, screen resolution 1024x768

System requirements

Operating system: Microsoft Windows 2000, XP or 2003

Network installation requirements

Network adapter with drivers supporting **TCP/IP**.

Installing the software

Portable Demo is made up of two components: the server and the client. The server is installed by running “setup.exe” which is located in the *PDServer* folder, whereas the client is installed by running “setup.exe” from the *PDClient* folder. Administrator's rights are required to run the program in both cases. During installation, the application automatically informs about missing components, such as .NET Framework 2.0. (If .NET Framework installation is required please download the latest version (e.g.: 2.0) compatible with your processor architecture (e.g.: x86 – for 32 bit processors).

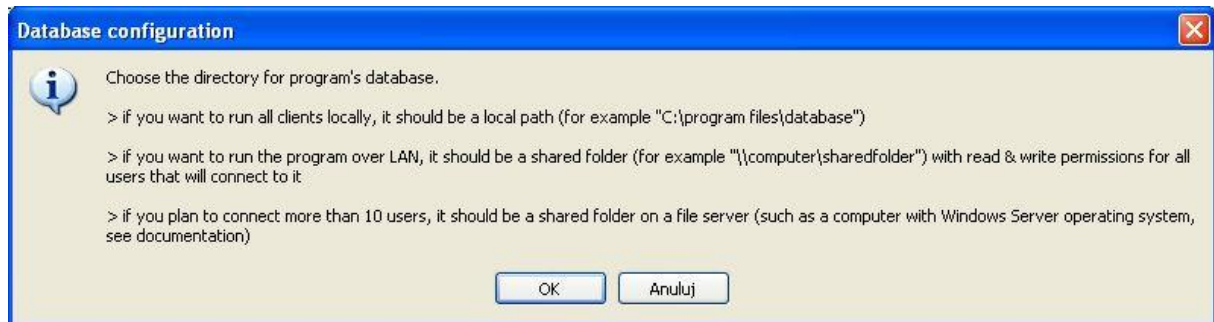
<http://www.microsoft.com/downloads/details.aspx?FamilyID=0856EACB-4362-4B0D-8EDD-AAB15C5E04F5&displaylang=en>

To continue software installation, please follow the instructions appearing on the screen.

Configuring the server

Portable Demo Server is the first element to be run.

During start-up, you will be requested to specify the target folder for the database file.



This location should be specified in such a way that full permission (read and write) is possible for each client and for the server in the following fashion:

- If the software is installed on one workstation only, all you need to do is specify any folder on the local drive.
- If, however, the software is installed on several workstations, the target location must be a network path to a shared folder (with full permissions) on any PC / server in the local network. The folder sharing process is described below:
 1. Ensure Windows XP Simple File Sharing is enabled. (details can be found in Windows Help)
 2. Open *Windows Explorer* (or *My Computer*).
 3. Navigate to the file, folder or drive folder to be shared, and click once on its icon to select it.
 4. From either the File menu or the right-click menu, choose the “*Sharing and Security...*” option. A new Properties window appears. If this option did not appear on the menu, ensure that a valid file or folder was selected in the previous step.
 5. Click the *Network* tab in the *Properties* window. If no *Network* tab appears in the window, but a *Sharing* tab appears instead, close this window and ensure the *Simple File Sharing* option was enabled in the previous step, before proceeding.
 6. Click the *Share This Folder* option in the *Properties* window to enable sharing of this resource. This allows all other computers in the local network to access file(s) but not

to modify them. To grant others permission to modify these files, click the “*Allow Network Users to Change My Files*” checkbox to enable this option.

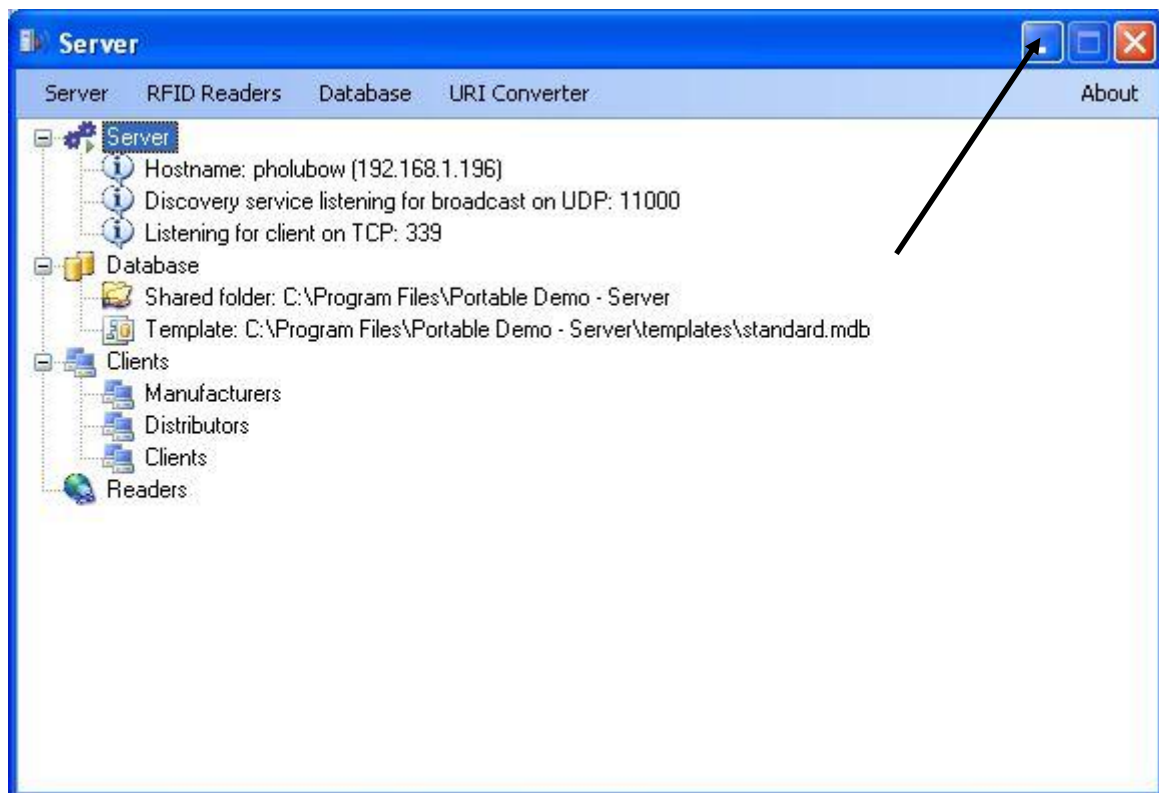
7. Alternatively, if the *Network* tab is not enabled, make the required settings in the *Sharing* tab to configure the equivalent sharing. Choose “*Share this folder*” to enable sharing.
8. Click Apply or OK to save these settings.

An alternative way to share files and folders entails moving or copying them to the *Shared Documents* folder. In Windows, all files contained in the *Shared Documents* folder are automatically shared in the local network.

The procedure for sharing files in Windows 2000 and earlier versions of Windows can be accessed from the “*File/Sharing*” menu in *Windows Explorer*.

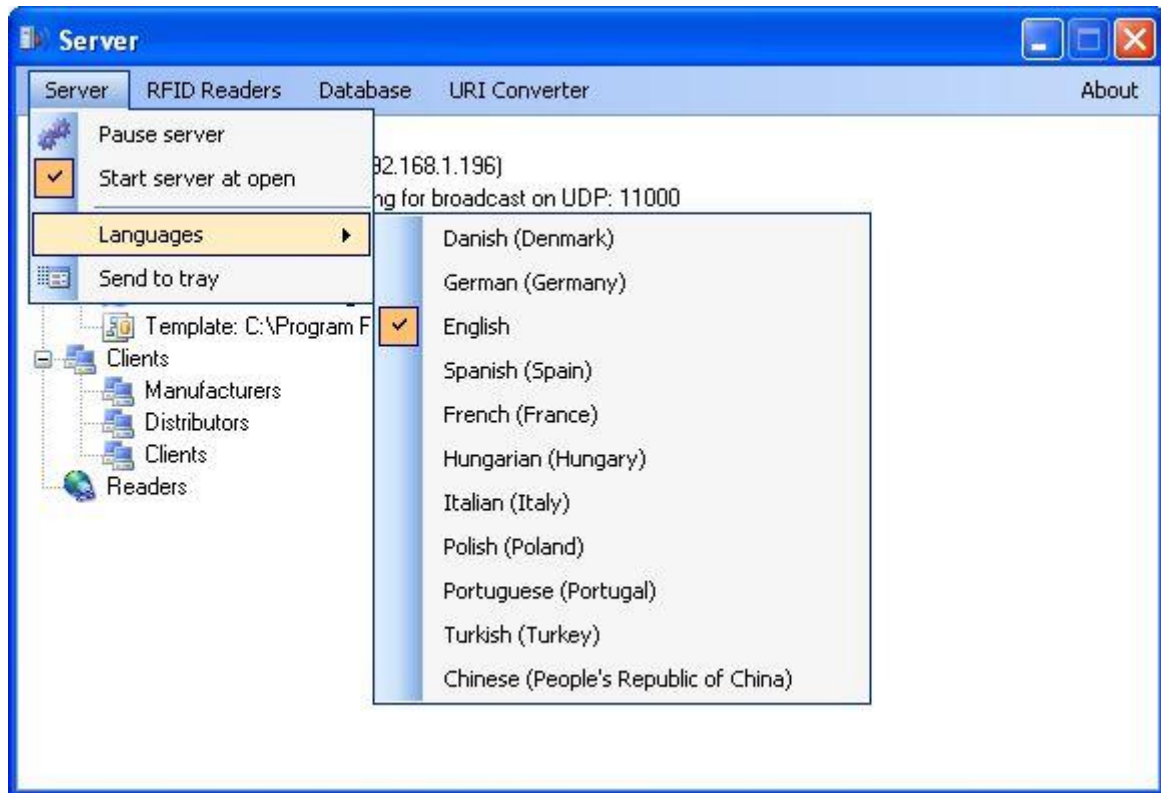
Once you have made the relevant choice, the application will initiate the database according to a *default* model, i.e. standard.mdb (to be found in the application model folder). To ensure that everything is working properly please pause and start server application.

After this final step the server is now successfully configured and you can minimize its window to toolbar.



Selecting the interface language

Portable Demo Server is available in a number of languages. In order to change the language of the server interface, choose the appropriate languages from the menu. The language will be changed after restarting the application.

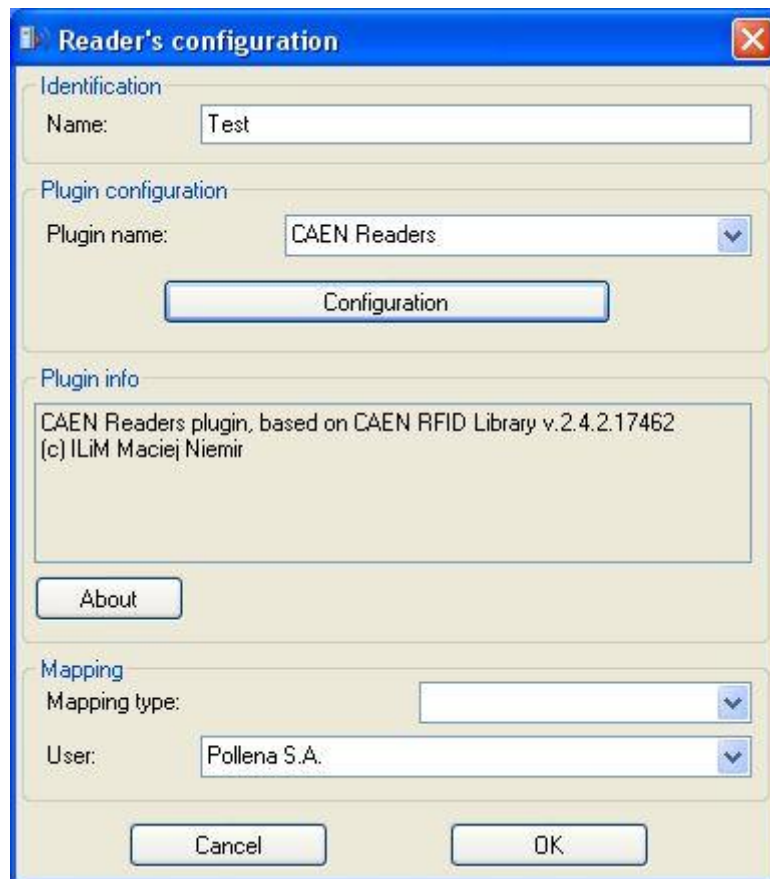


The next paragraph describes the process of adding RFID readers to *Portable Demo Server*. If you are only going to use virtual reader, you can skip this step and go to *Configuring the client*.

Configuring RFID readers

Portable Demo Server can support any number of readers simultaneously. Readers can be enabled in the server by loading appropriate libraries (called “plugins”) in the program. Currently, the program is delivered with plugins supporting CAEN, Intermec, SAMsys, SICK and Sirit readers. There is also a plugin supporting any reader communicating with the LLRP protocol. Finally, it is also possible for the users to create their own plugins supporting any reader available – in such case it is recommended to analyze the supplied “test” plugin, see the detailed description below.

In order to add a reader to *Portable Demo Server*, the “add new reader” command has to be selected from the menu. This opens a form in which the details of the reader plugin have to be filled in.



In the “plugin name” field, the plugin has to be selected from the dropdown list of available plugins. Next, additional configuration characteristic for the plugin can be done by pressing the “configuration” button. Example configuration options may include the IP address of the reader, the port or the mode of operation.



An important group of parameters involves mapping, i.e. transmitting RFID tag identification results obtained by readers to selected Portable Demo users directly or from specified system groups. Principle of operation:

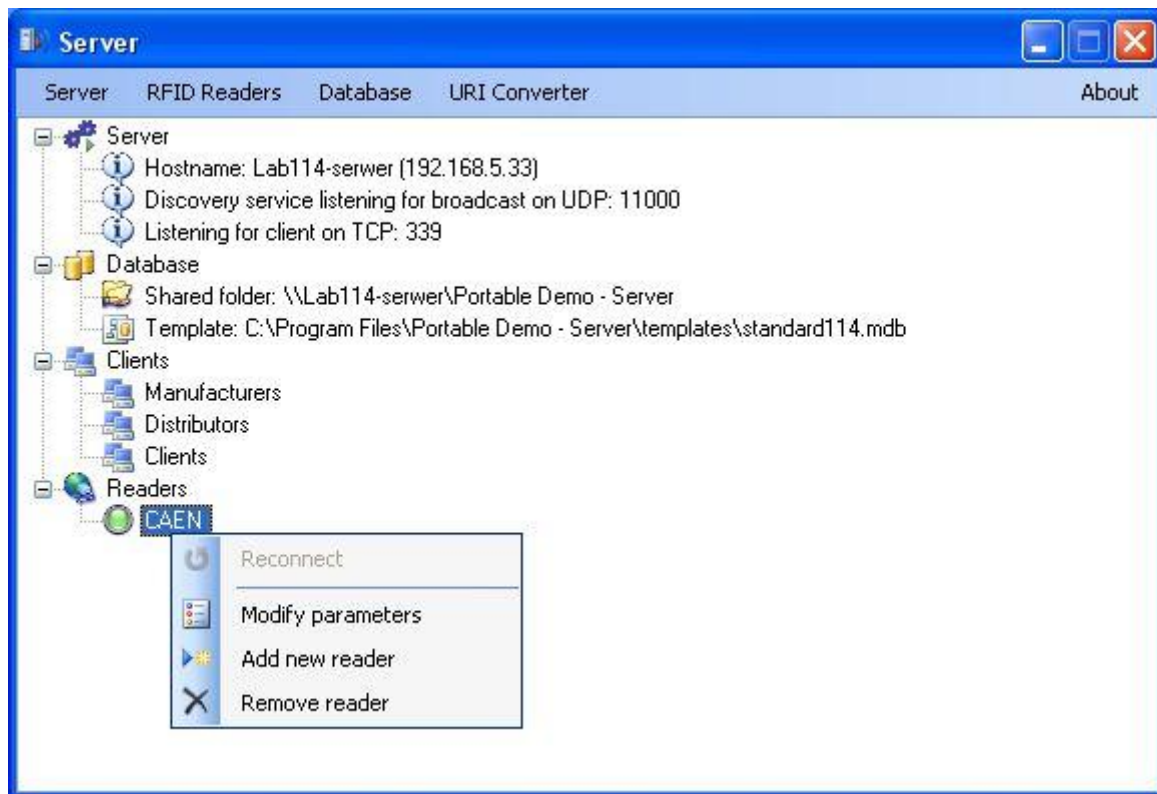
- “specified GLN number” – associate the reader with a specific user of the program. Once “listening to the reader” action is activated by clicking the relevant button -  Capture reader - in the client program, all communication with the this reader will be sent to the selected user

- “auto for all manufacturers/distributors/clients” – automatically associate the reader with users from the selected group. Once “listening to the reader” action is activated by the user of that group, all communication with this reader will be sent to the user (until the listening is disabled or the process is enabled by another user in the same group)
- “auto for all users” - identical procedure to group mapping described above, however this applies to all Portable Demo users regardless of their group

The screenshot shows the 'Reader's configuration' dialog box. It has a blue title bar with the text 'Reader's configuration' and a close button. The dialog is divided into four sections: 'Identification' with a 'Name' field set to 'Test'; 'Plugin configuration' with a 'Plugin name' dropdown set to 'CAEN Readers' and a 'Configuration' button; 'Plugin info' with text 'CAEN Readers plugin, based on CAEN RFID Library v.2.4.2.17462 (c) ILiM Maciej Niemir' and an 'About' button; and 'Mapping' with a 'Mapping type' dropdown (currently empty) and a 'User' field set to 'MMG Co.'. The 'Mapping type' dropdown is open, showing options: 'auto for all manufacturers', 'auto for all distributors', 'auto for all clients', 'auto for all users', and 'specified GLN number'. A 'Cancel' button is at the bottom left.

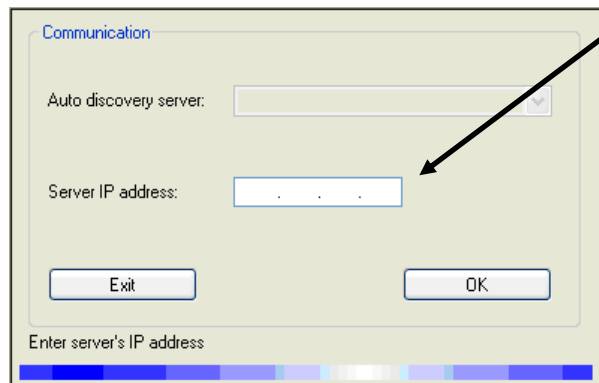
By clicking OK, data will be saved and an attempt will be made at connecting to the reader.

The current status of the reader connection is signalled with icon colours: red - reader not connected; yellow - reader connection in progress; green - reader connected. Each configured reader is saved by the application and stored in the local configuration file. With each start of the server, the application tries to connect to each reader. Errors are signalled with the relevant messages.

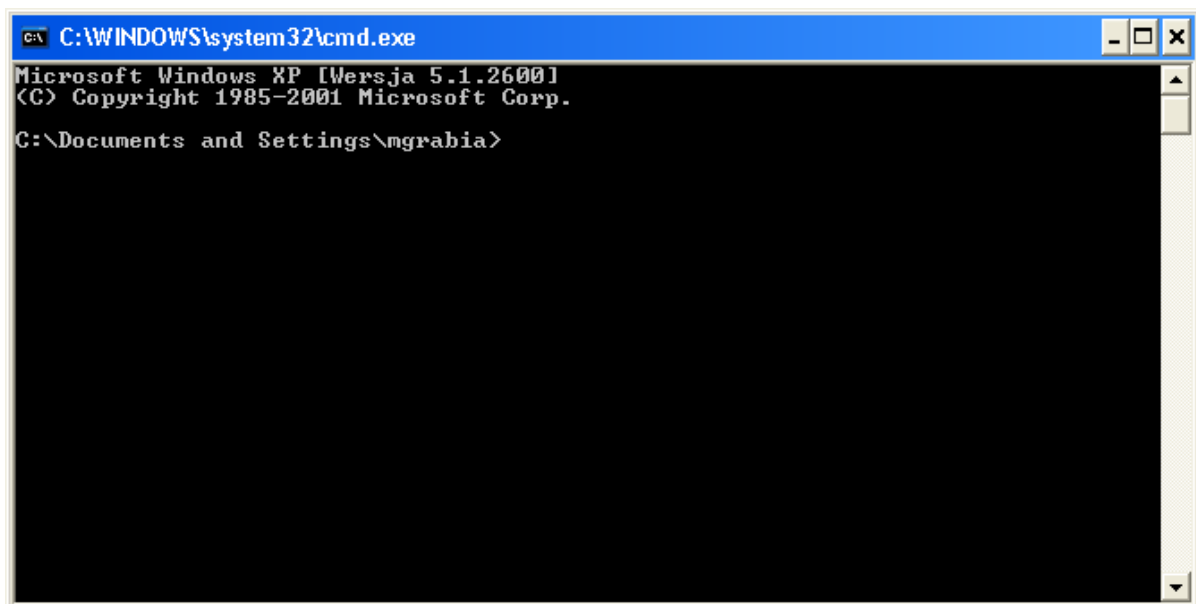


Configuring the client

There is no restriction in *Portable Demo* as to the number of clients connected to the server or instances of clients activated on a given PC. Each newly activated client automatically searches for the server address by sending a broadcast message. It is necessary that the server is activated and fully preconfigured at that moment. In case of failure (e.g. the server is in a different subnetwork than the client), the server IP address should be entered manually.



In Windows, the current IP address of a PC is checked using the *ipconfig* command. To do this, select *Run* from the *Start* menu, enter the command *cmd* and click OK.



A black screen will appear where you should enter *ipconfig* and press Return. Then you will see all data related to network configuration.

The IP address should be entered in the *Server IP address* field.

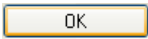
Communication

Auto discovery server:

Server IP address: 192.168.1.64

Exit OK

Enter server's IP address

Once you have entered the IP number and clicked , the number will be saved in the local settings of the user and used automatically with subsequent activation of the client.

Advanced network configuration (PDServer.exe.config file - for the server, and PDClient.exe.config - for clients)

There is a possibility of interfering with *Portable Demo* communication ports. One must bear in mind that the same values must be entered for the server and for each client.

```
<setting name="TCP_PORT" serializeAs="String">  
  
    <value>339</value>  
  
</setting>
```

The value TCP_PORT is the number of the listening port of the server for PD clients

```
<setting name="UDP_PORT" serializeAs="String">  
  
    <value>11000</value>  
  
</setting>
```

The value UDP_PORT is the number of the listening port for automatic server search in the local network.

Preparing data for the demonstration

Modifying the demonstration scenario

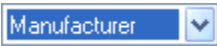
The *Portable Demo* software has an inherent database storing information on the users of a simulated supply chain and goods included in the presentation. In order to enable a fast demonstration start, 3 business locations and 5 standard pallets have been implemented in the database. Using the *default* data is not necessary, however, and users may add their own products and supply chain participants to the database. Any changes related to business locations and EPC codes are implemented using *Portable Demo Server*. The option related to specifying the number and type of business locations in the supply chain created can be found in the menu:

Database >> Template configuration >> Users (GLN)

Once you have activated the above option, you will see the following window: *Add users (GLN)*

User type	Name	GLN	Address	City
Manufacturer	MMG Co.	5900000000...	Estkowskiego 6	Poznan
Distributor	DistriBrand Co.	5909999000...	Sobieskiego 10	Wroclaw
Client	Bestshopping Co.	5901111000...	Mieszka 145	Warszawa
*				

Manufacturer
Distributor
Client

Select one of three available types of business locations from the menu . Then, enter descriptions for all locations in the remaining fields. The system enables any number of supply chain users to be added (*Add new*).

The next step is to specify warehouse stock for each business location. In order to add or modify pallet and collective packaging data at a given manufacturer, distributor or client, use the menu.

Database >> Template configuration >> Tags

If the *Tags* function is called, the *Change data (TAGS)* window appears.

SSCC (URI)	Gross weight of	Width of pallet [mm]	Length of pallet [mm]	Height of pallet [mm]	Color
urn:epc:id:sscc:59000000.04000...	100	800	1200	1000	Blue
urn:epc:id:sscc:59000000.04000...	100	800	1200	1000	Green
urn:epc:id:sscc:59000000.04000...	100	800	1200	1000	Red
urn:epc:id:sscc:59000000.04000...	80	800	1200	1000	Orange
urn:epc:id:sscc:59000000.04000...					Violet

SGTIN (URI)	LOT	Use by (YYYY.MM.DD)
urn:epc:id:sgtin:59000000.055510.458623	458623	
urn:epc:id:sgtin:59000000.055510.458621	458621	
urn:epc:id:sgtin:59000000.055510.458622	458622	
urn:epc:id:sgtin:59000000.055510.458620	458620	

GS1 Identifier (GTIN)	Product name	Product symbol
59000000055510	VERBATIM - COLLECTIVE PACKAGING 10 PCS.	55510
Quant. of single unit in collective packaging	Quantity of single unit on pallet	Gross weight of collective packaging [kg]
10	40	25
Length of collective packaging [mm]	Width of collective packaging [mm]	Height of collective packaging [mm]
300	200	250
		Store temperature [C]

The first to be selected should be the business location for which the warehouse stock will be specified. In the default view, it is the first location of a previously created list of the supply chain users (*Add users GLN*).

The EPC numbers added may be completely virtual (created using a number generating machine, which is available in the Portable Demo Server) or they can be numbers actually saved in RFID tags. In the former case, the generated SSCC number should be entered manually in the field SSCC(URI), whereas SGTIN numbers should be entered in the fields SGTIN(URI). One should bear in mind that the SGTIN numbers entered are automatically assigned to the specified SSCC number and form a pallet with the latter. SGTIN numbers may represent one type of product or different products. Depending on the selected model, homogeneous pallets or mixed pallets are created.

The use of EPC numbers saved in RFID tags is facilitated in the software to the greatest possible extent. It is thus possible to simply read EPC numbers using a physical reader (they appear in the RFID Tags window) and transfer numbers by dragging and dropping into the corresponding cell on the left-hand side.

Change data (TAGS)

MMG Co. Save Data Clear Tag window

SSCC (URI)	Gross weight of	Width of pallet [mm]	Length of pallet [mm]	Height of pallet [mm]	Color
urn:epc:id:sscc:5900000.04000...	100	800	1200	1000	Blue
urn:epc:id:sscc:5900000.04000...	100	800	1200	1000	Green
urn:epc:id:sscc:5900000.04000...	100	800	1200	1000	Red
urn:epc:id:sscc:5900000.04000...	80	800	1200	1000	Orange

RFID Tags

- urn:epc:id:sgtin:0067953.198233.223338319468
- urn:epc:id:sgtin:0067953.198233.223338319484
- urn:epc:id:sgtin:0067953.198233.223338319500
- urn:epc:id:sgtin:0067953.198233.223338319404
- urn:epc:id:sgtin:0867360217.005.889520128

SGTIN (URI) LOT

- urn:epc:id:sgtin:5900000.055510.458623 45862
- urn:epc:id:sgtin:5900000.055510.458621 45862
- urn:epc:id:sgtin:5900000.055510.458622 45862
- urn:epc:id:sgtin:5900000.055510.458620 45862

GS1 Identifier (GTIN) Product name Product symbol

5900000055510 VERBATIM - COLLECTIVE PACKAGING 10 PCS. 55510

Quant. of single unit in collective Quantity of single unit on pallet Gross weight of collective packaging Net weight of collective packaging

10 40 25 24

Length of collective packaging [mm] Width of collective packaging [mm] Height of collective packaging [mm] Store temperature [C]

300 200 250

All numbers are presented in URI form. To see them in hexadecimal form please use option:

RFID readers >> tags monitor

Tags Monitor

Tag (HEX)	Reader	URI	Type	Header	Filter	Filter type	Partition	Prefix	Refere...	Serial number
30-08-33-B2-DD-D9-01-40-35-05-00-00	CAEN	urn:epc:id:sgtin:08...	SGTIN-96	48	0	All Others	2	0867360217	005	889520128
30-94-04-25-C4-C1-96-74-00-00-4E-8C	CAEN	urn:epc:id:sgtin:00...	SGTIN-96	48	4	Reserved	5	0067953	198233	223338319500
30-94-04-25-C4-C1-96-74-00-00-4E-6C	CAEN	urn:epc:id:sgtin:00...	SGTIN-96	48	4	Reserved	5	0067953	198233	223338319468
30-94-04-25-C4-C1-96-74-00-00-4E-7C	CAEN	urn:epc:id:sgtin:00...	SGTIN-96	48	4	Reserved	5	0067953	198233	223338319484
30-94-04-25-C4-C1-96-74-00-00-4E-2C	CAEN	urn:epc:id:sgtin:00...	SGTIN-96	48	4	Reserved	5	0067953	198233	223338319404
30-08-33-B2-DD-D9-01-40-35-05-00-00	CAEN	urn:epc:id:sgtin:08...	SGTIN-96	48	0	All Others	2	0867360217	005	889520128
30-94-04-25-C4-C1-96-74-00-00-4E-8C	CAEN	urn:epc:id:sgtin:00...	SGTIN-96	48	4	Reserved	5	0067953	198233	223338319500

The program also enables empty pallets to be created, the content of which will only be defined during demonstration. In order to create an empty pallet, all you need to do is add an SSCC number, leaving the SGTIN (URI) fields empty. When adding new EPC (SGTIN) numbers to the database, one should bear in mind that these represent physical objects. Hence, the relevant descriptions should be completed, which are necessary for subsequent identification of the goods in virtual warehouses.

GS1 Identifier (GTIN)	Product name	Product symbol
5900000055510	VERBATIM - COLLECTIVE PACKAGING 10 PCS.	55510

Quantity of single	Quantity of single unit on pallet	Gross weight of collective packaging [kg]	Net weight	Length of collective packaging [mm]	Width of collective packaging [mm]	Height of
10	40	25	24	300	200	250

In case of SSCC numbers it is only necessary to specify geometrical dimensions of the pallet and the colour in which it will be represented during demonstration. You should not forget that saving data relating to users and data of warehouse stocks is done using the current template used, therefore this information will not be visible on the part of PD clients until the function resetting the presentation database to the current template is used:

Database >> Reset database to template

Portable Demo can set its database using different templates identified by the user, it is thus worthwhile creating several own templates and using them depending on their needs and presentation requirements. Templates can be created based on existing models or from scratch. To do this, copy the file to any existing template (or an empty template, “empty.mdb”) and save it under any name (template files are located in the /templates folder) and then set it in the program

Database >> Template configuration >> Set database template

and perform operations related to the setting of users and warehouse stocks presented above. In order to create a new template you can also use a specific command from the menu:

Database >> Template configuration >> Create new template

Using the GS1 identifiers converter

The GS1 codes converter can be launched by selecting the “URI Converter” on the server menu.

The converter consists of 2 panes – the Input pane on top and the Output pane on the bottom part.

- In the Input pane the user may provide details of one of the GS1 codes ((S)GTIN, SSCC or GLN) or provide the whole EPC number, in binary or hexadecimal format.
- In the Output pane, the EPC number is constructed and displayed in various formats, together with information on its components

The fields in the Input pane correspond to GS1 code components, for details see GS1 documentation. The user may also generate random data by pressing “Generate Random GTIN/SSCC/GLN number”.

After the “Convert” button is pressed, the fields in the Input pane are validated and on success, the Output pane is filled in. The “Conversions” tab displays the EPC number in various formats:

- Pure Identity URI – EPC number as URI, independent of the tag type
- EPC Tag URI – URI that contains information about the tag (96-bit is assumed)
- ONS (only for GTIN) – address which can be used for making ONS queries
- HEX – EPC in hexadecimal format

- BIN – EPC in binary format

The „Advanced“ tab displays detailed information on each component of the EPC number, for details see the GS1 documentation. This is particularly useful if the user has input a complete EPC number, in binary or hexadecimal format.

The screenshot shows a Windows-style application window titled "Converter". It has a blue title bar with standard minimize, maximize, and close buttons. The main content area is divided into two sections: "Input" and "Output".

Input Section: This section contains four tabs: "GTIN", "SSCC", "GLN", and "TAG BIN". The "GTIN" tab is currently selected. It features four input fields: "GTIN", "Serial number", "Length of EPC Manager" (set to 6 with a spinner), and "Filter" (a dropdown menu). To the right of these fields is a button labeled "Generate Random GTIN Number". Below the input fields is a large "Convert" button.

Output Section: This section contains two tabs: "Conversions" and "Advanced". The "Advanced" tab is currently selected. It displays five output fields: "Pure Identity URI", "EPC Tag URI", "ONS", "HEX", and "BIN". Each field has a corresponding text input area. Below the "Pure Identity URI" field, there is a tip: "TIPS: You can drag this URI to add new rows in Portable Demo database."

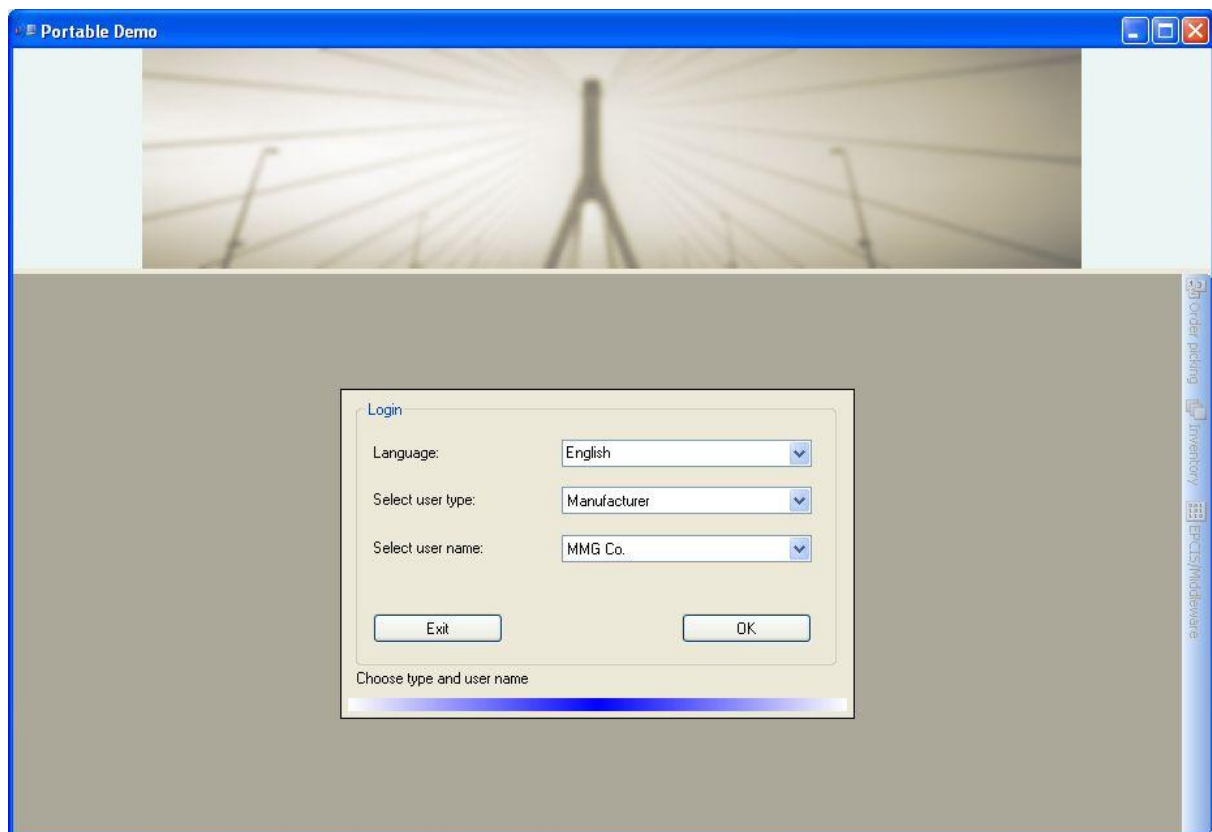
Starting the demonstration

The demonstration scenario allows the use of 4 workstations and a virtual reader. You should not forget that Portable Demo may also be used on a greater number of computers using real readers. The prepared scenario is aimed at presenting the basic functionality of the program, which always looks the same, irrespectively of the size of the supply chain (number of manufacturers, distributors, clients).

The first stage of the demonstration is to make sure that all system components are correctly installed and configured on 4 PCs (the server installed on one PC and clients on the remaining three workstations) joined in a local network.

In order to find out how to install and configure the components of *Portable Demo Server* and *Portable Demo Client* → see pages 4-9 of the user manual

Having activated the server, run *Portable Demo Client*.



The program will automatically find the server in the network. The language of the interface can be selected from the dropdown menu. The next step is to select user type. In the case under consideration, the supply chain consists of three partners only: the manufacturer, the distributor and the client. You should thus select a different user type on each PC.

Login

Language: English

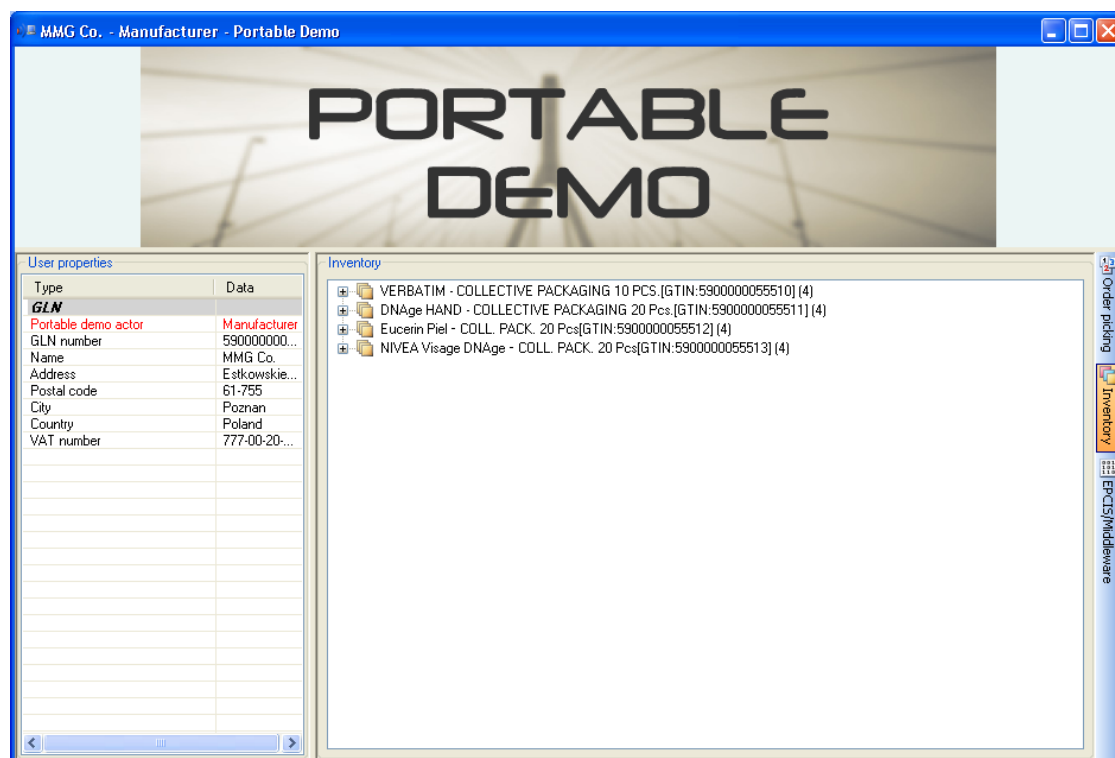
Select user type: Manufacturer

Select user name: Manufacturer
Distributor
Retailer

For demonstration purposes, only one participant of the supply chain of a given type has been entered into the database. The selection of the name is thus predetermined. In case of more complex supply chains, it is possible that there will be several users of the same type to select from. It is thus necessary to select the name of the company to which we want to log in.

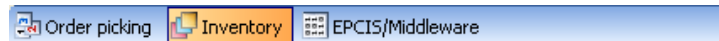
Demonstrating EPCglobal network functionality

The presentation starts at the manufacturer's location (having successfully logged onto the server of three clients as users of different types: manufacturer, distributor, client).

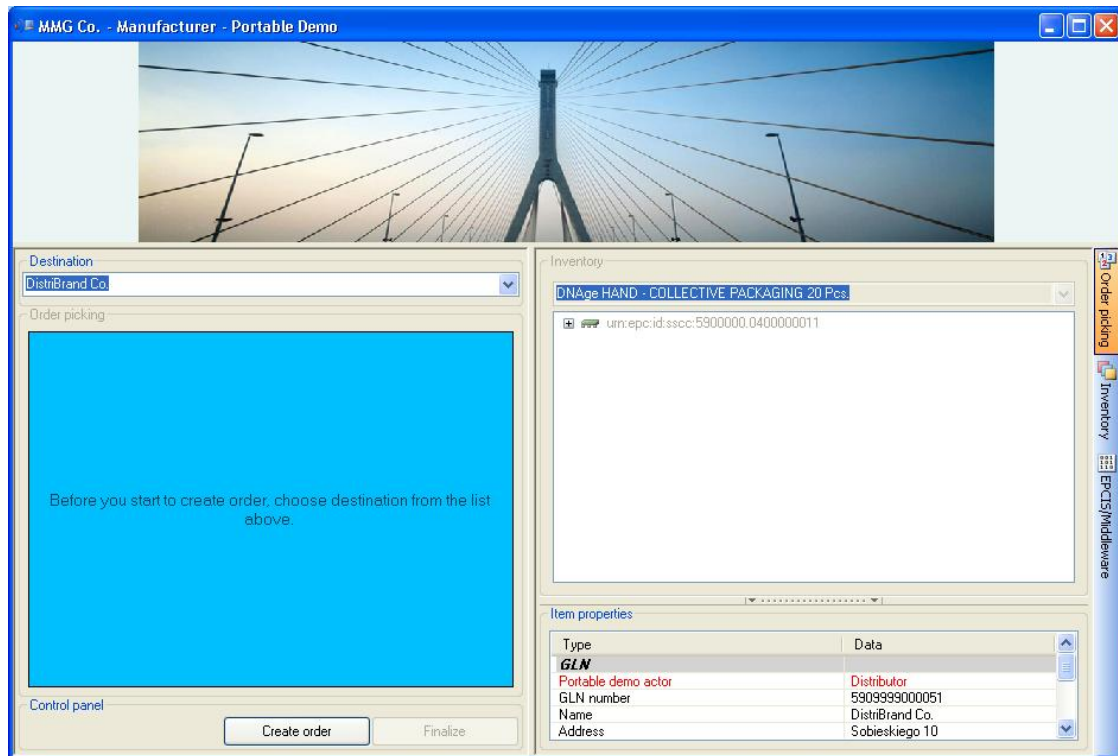


Once you have logged on, the view automatically sets itself to show the inventory of a given supply chain participant. In the right hand side window, you can see a list of products available including GTIN numbers of collective packaging and their count in the warehouse. The goods available in the virtual warehouse will form the basis for creating pallets allocated for shipment. In order to be able

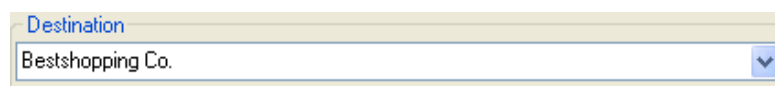
to prepare a shipment it is necessary to change the view from Inventory to Order picking. This can be modified using the view buttons to the right hand side of the window.



As a result of change, the following screen will appear:

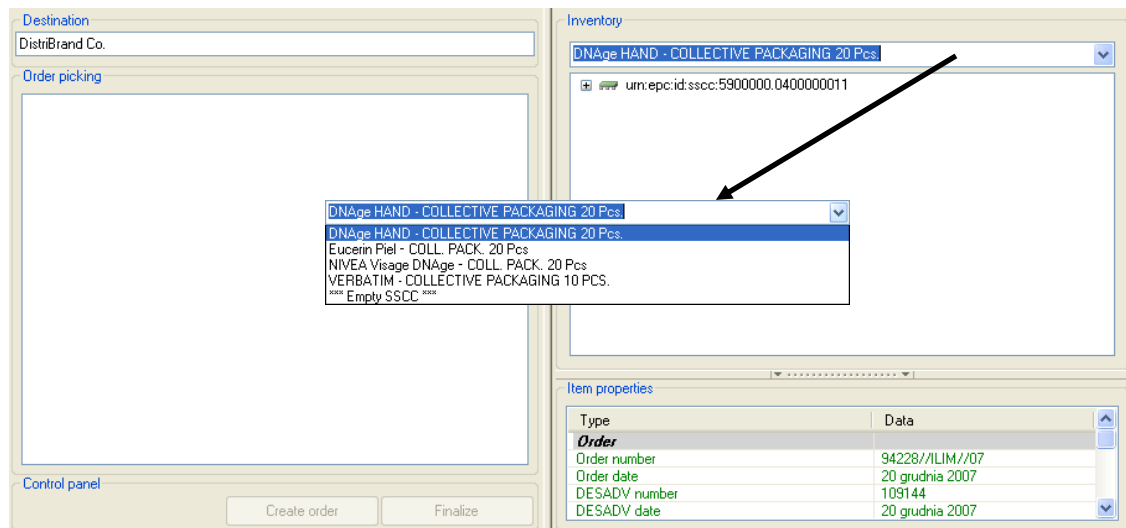


The first action that must be carried out before starting order picking, is to select the recipient of our shipment. The selection is made using the drop-down menu designated as “Destination”.

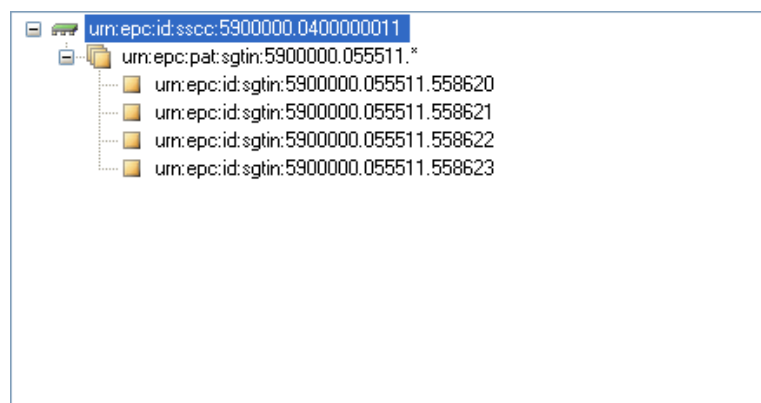


In the demonstration prepared, the second link in the supply chain is the company DistriBrand Co.

In order to perform order picking, click . A blue panel and a list of goods available will be unlocked. To continue order picking, first select goods you want to send to the client from the list. The process is carried out individually, i.e. you select the product type you want to add to your shipment from the drop-down list in the right-hand side panel.

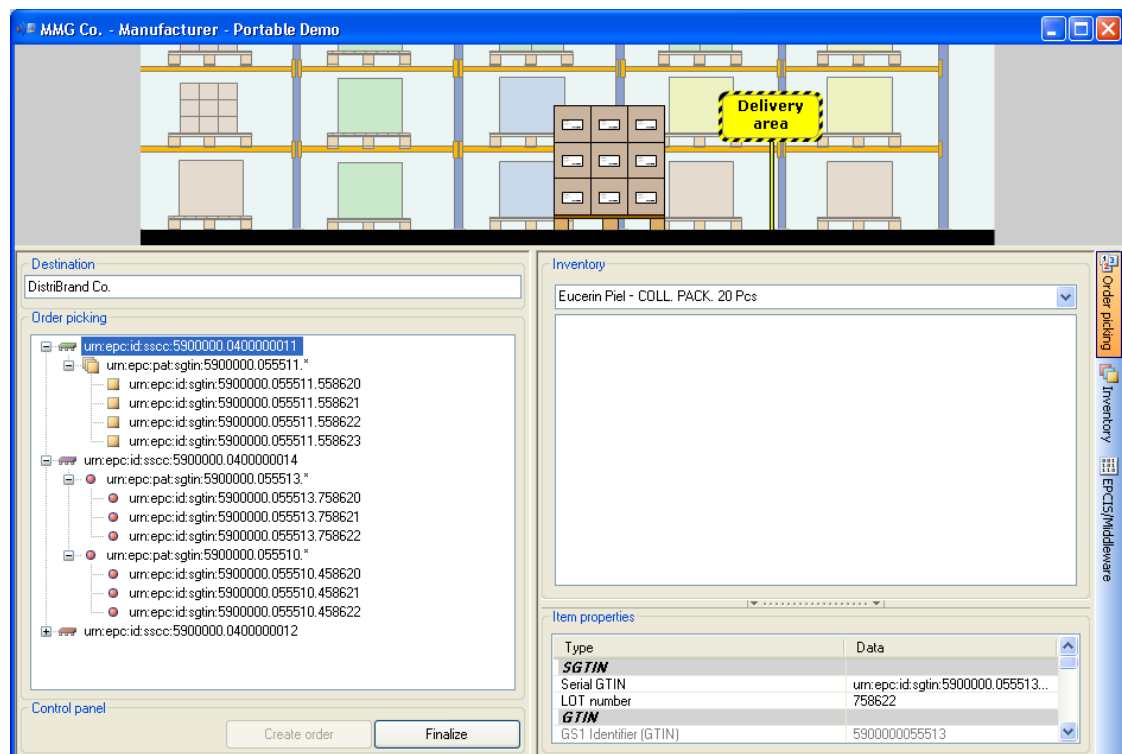
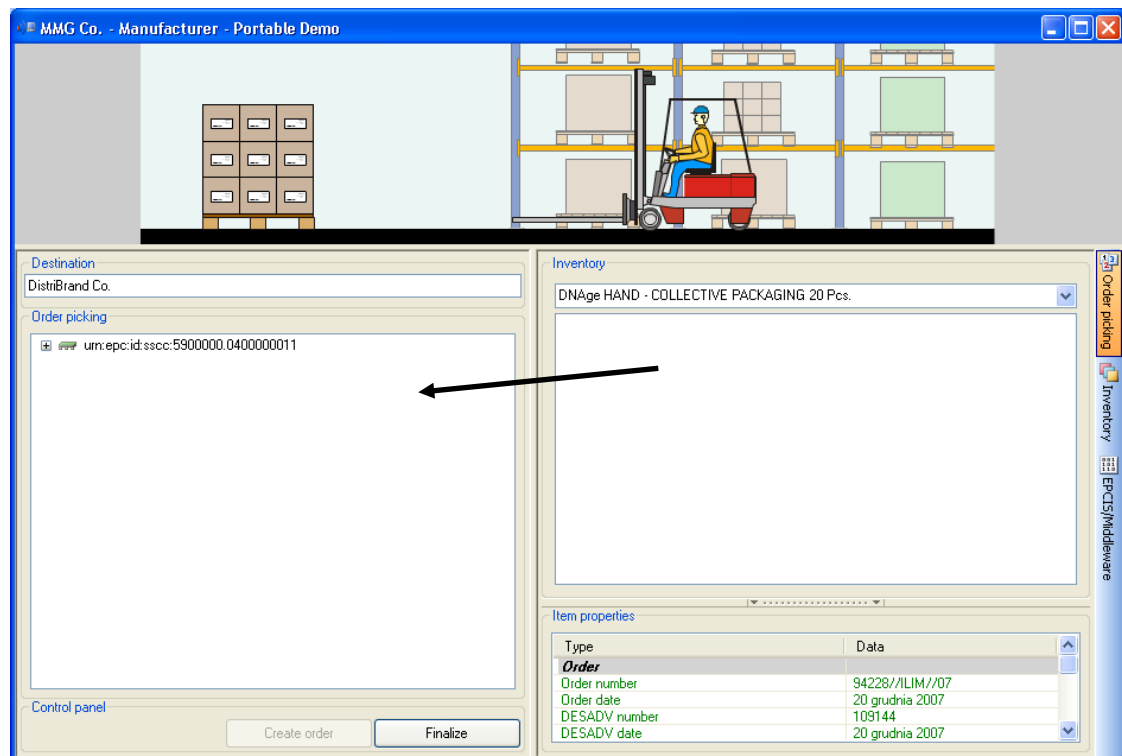


Default data make it possible to select from 4 available products and an additional option described as ***EmptySSCC***. Selection of each product automatically causes the list of pallets in which a given product can be found to appear in the window below. Since, for demonstration purposes, all implemented pallets are homogenous, every time you will only see one available pallet.

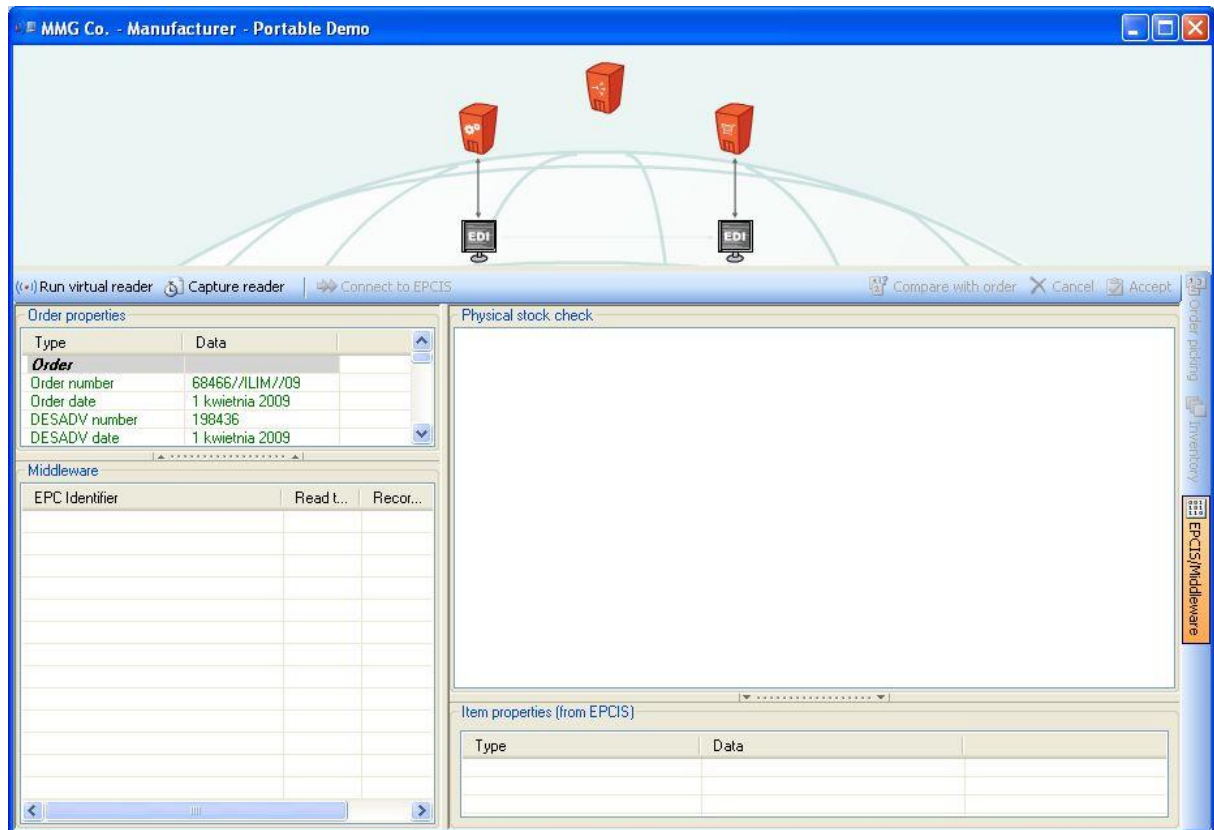


Portable Demo enables order picking to be carried out in two basic modes: order picking based on whole homogenous pallets or/and by simultaneous picking of an empty SSCC pallet. For the purposes of this demonstration, an entry of the SSCC number has been placed in the database, without collective packaging assigned to it. In other words, an empty pallet with the number SSCC has been prepared.

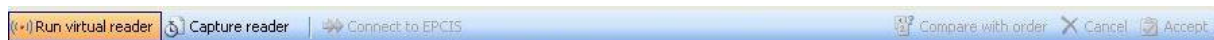
Order picking is carried out by dragging and dropping, i.e. manually moving logistic units from the right-hand side panel to the left-hand side one.



On the basis of this principle, order picking has been carried out by moving two homogenous pallets and additionally filling an empty pallet by moving 6 collective packaging onto it (3 packets of each product). Order picking is completed by clicking **Finalize**. Once the process is accepted, the view automatically changes to EPCIS/Middleware.



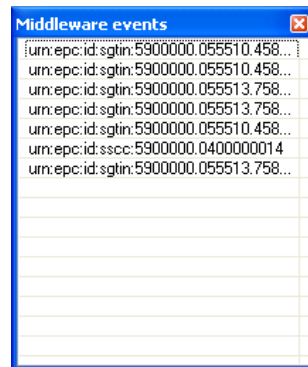
Since the system enables virtually unlimited expansion of the supply chain and makes it possible to use physical readers (in any configuration, e.g. five participants of the supply chain and only one physical reader), it is necessary to inform the server which user is using the reader at a given moment. In order to assign a reader to your own business location, it is thus necessary to click **Capture reader**. Only then will it be possible to actually do the correct readout. In the presentation, reading of the prepared pallets will be carried out using a virtual reader. A reader is activated by clicking “Run virtual reader” on the bar below the animation window.



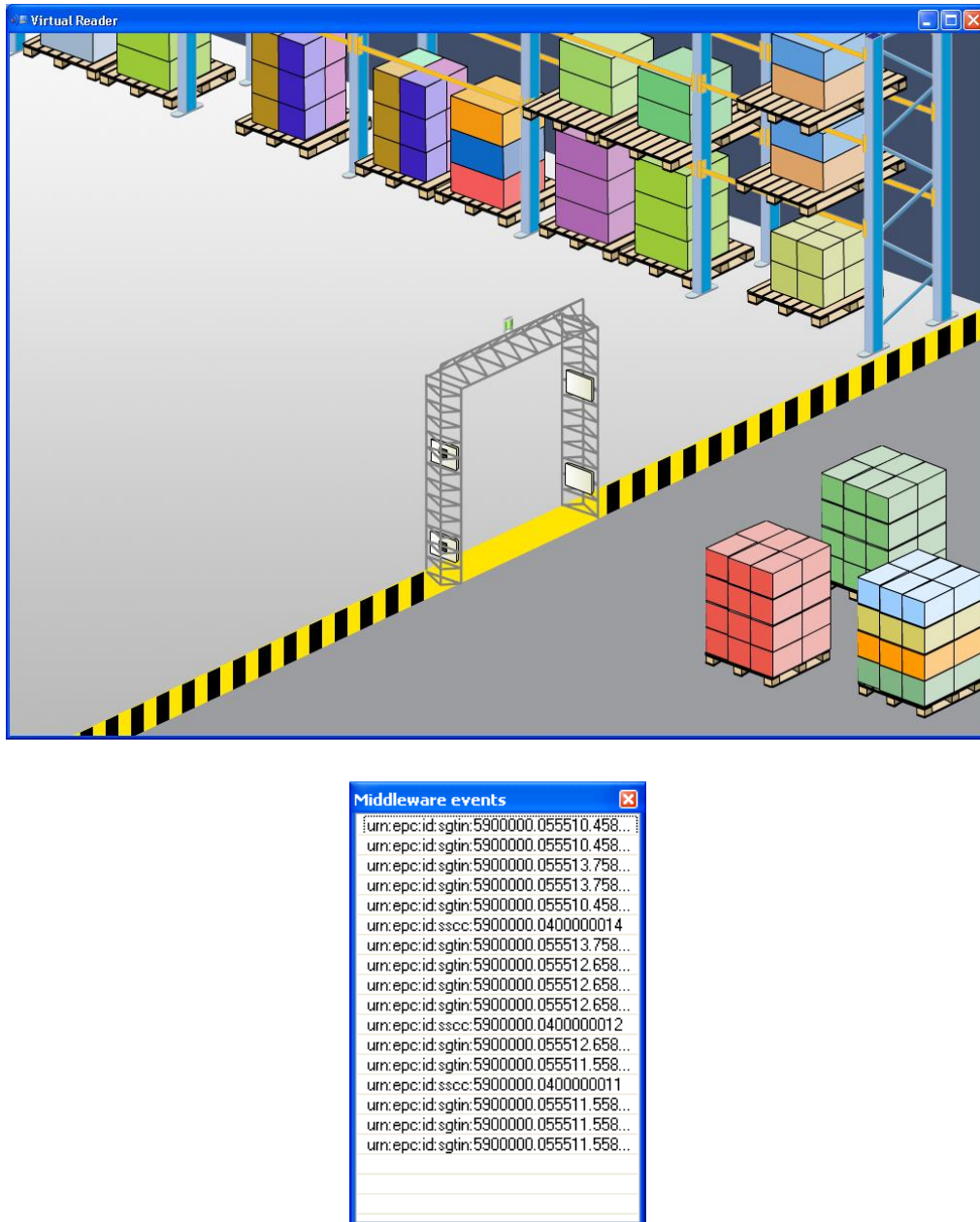
The reader window should look as follows:



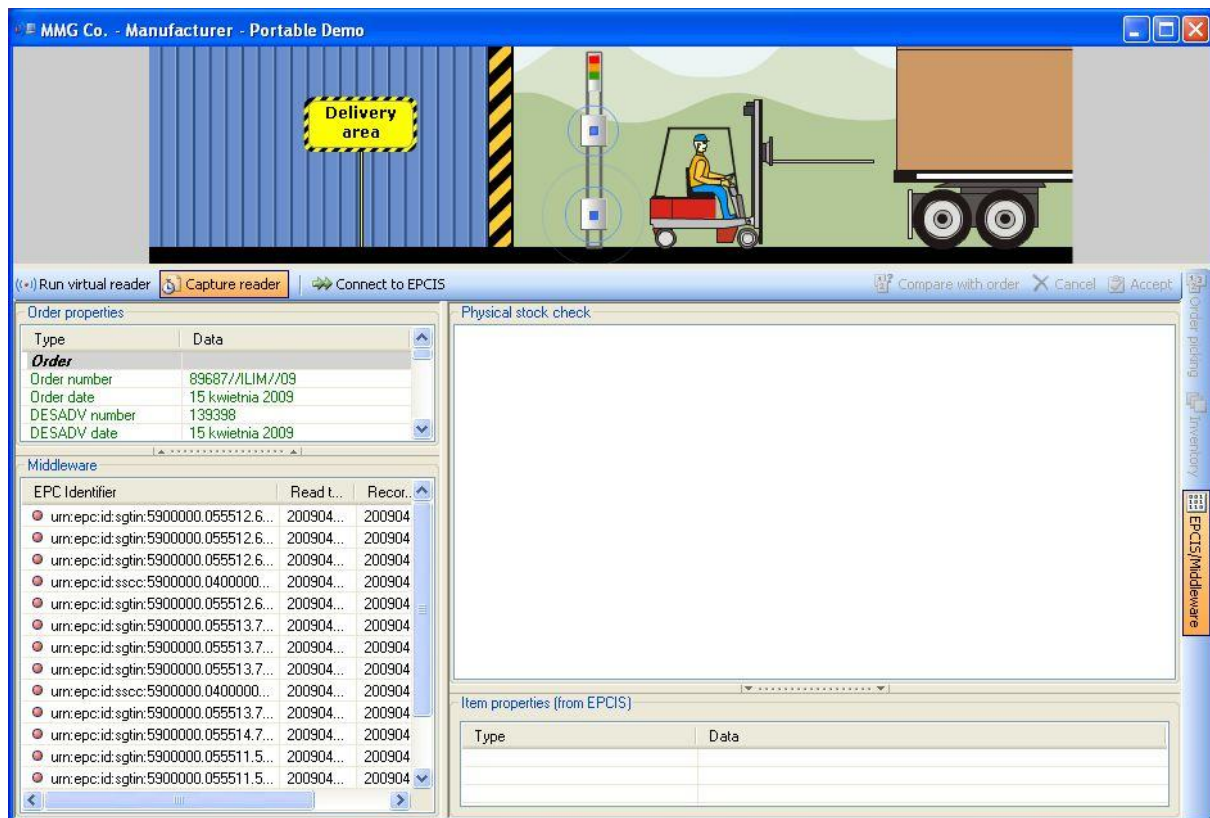
We thus see, in the warehouse, three pallets prepared for shipment: two homogeneous pallets and one mixed pallet. The readout takes place by physically moving pallets through the RFID gate using the mouse. At the same time, a small semi-transparent window shows the numbers SSCC and SGTIN of the goods read.



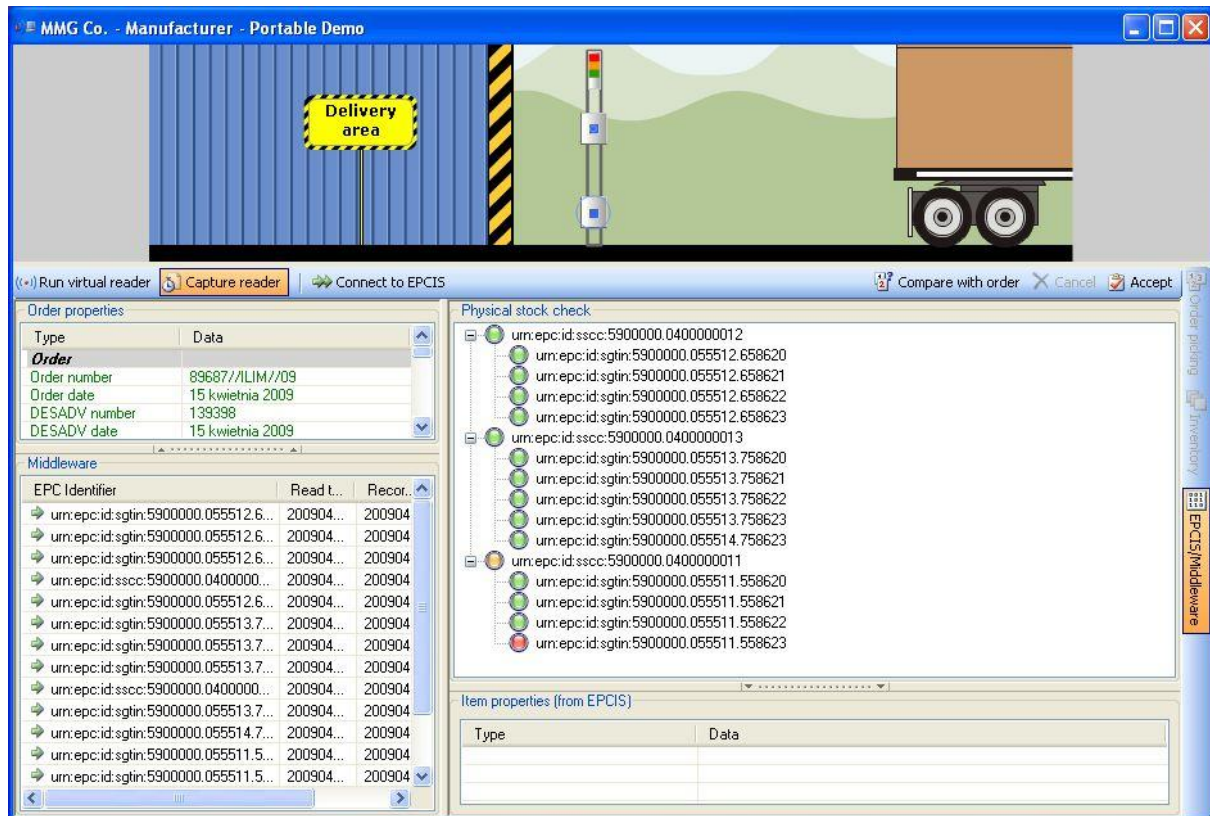
A read-out is regarded as completed if all pallets have been moved beyond the warehouse and the list of EPC numbers read is complete.



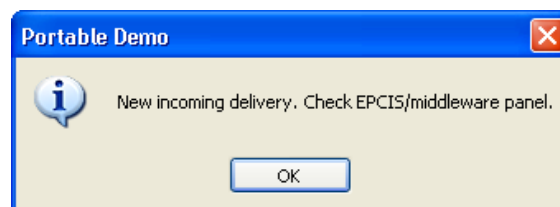
Having completed the readout, close the reader window. All numbers read also appeared in the left-hand side panel of the program.



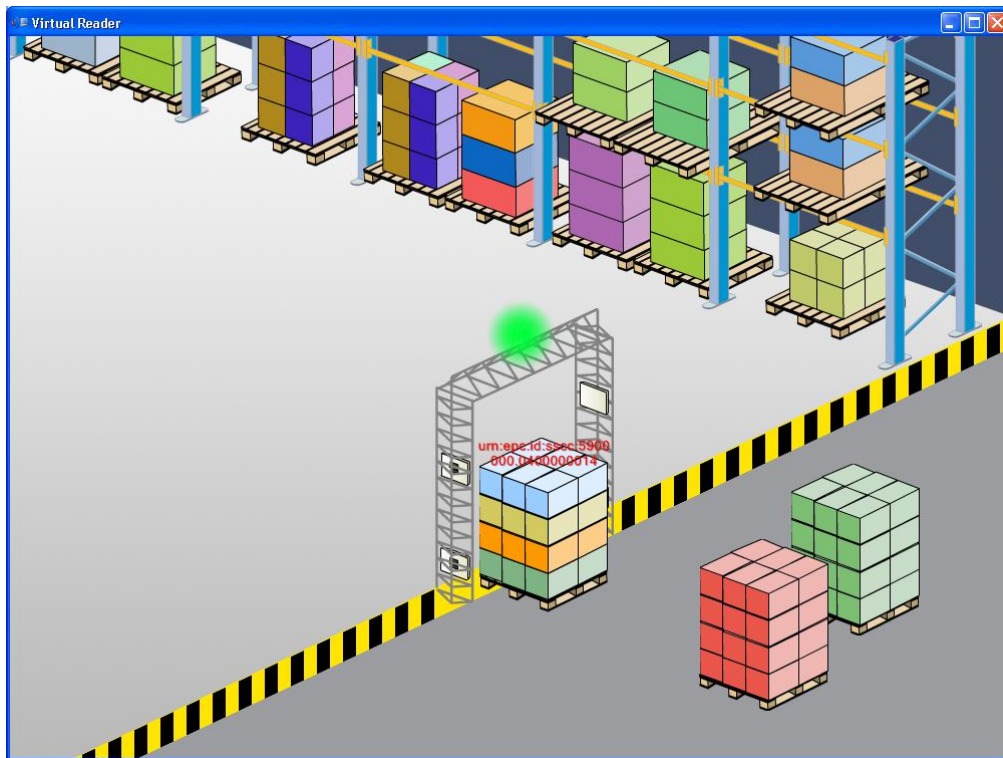
In the real world, the process of reading RFID tags when they are moved through the gate, can virtually complete goods shipment. In the case under consideration, due to some restrictions and the need to use one program, common for all three types of users, it is necessary to “manually” verify EPC numbers read and to enter descriptions related to the goods sent to the EPCIS server. The process is effected by clicking “Connect to EPCIS”. This enables all goods to be verified, which makes it possible to find out whether all EPC numbers have been read. EPC numbers verified correctly are marked green. An incorrect or missing readout is depicted in red.



The last action to be performed is to approve the shipment by clicking “Accept”. The following message will appear simultaneously on the distributor's (DistriBrand Co.) PC:



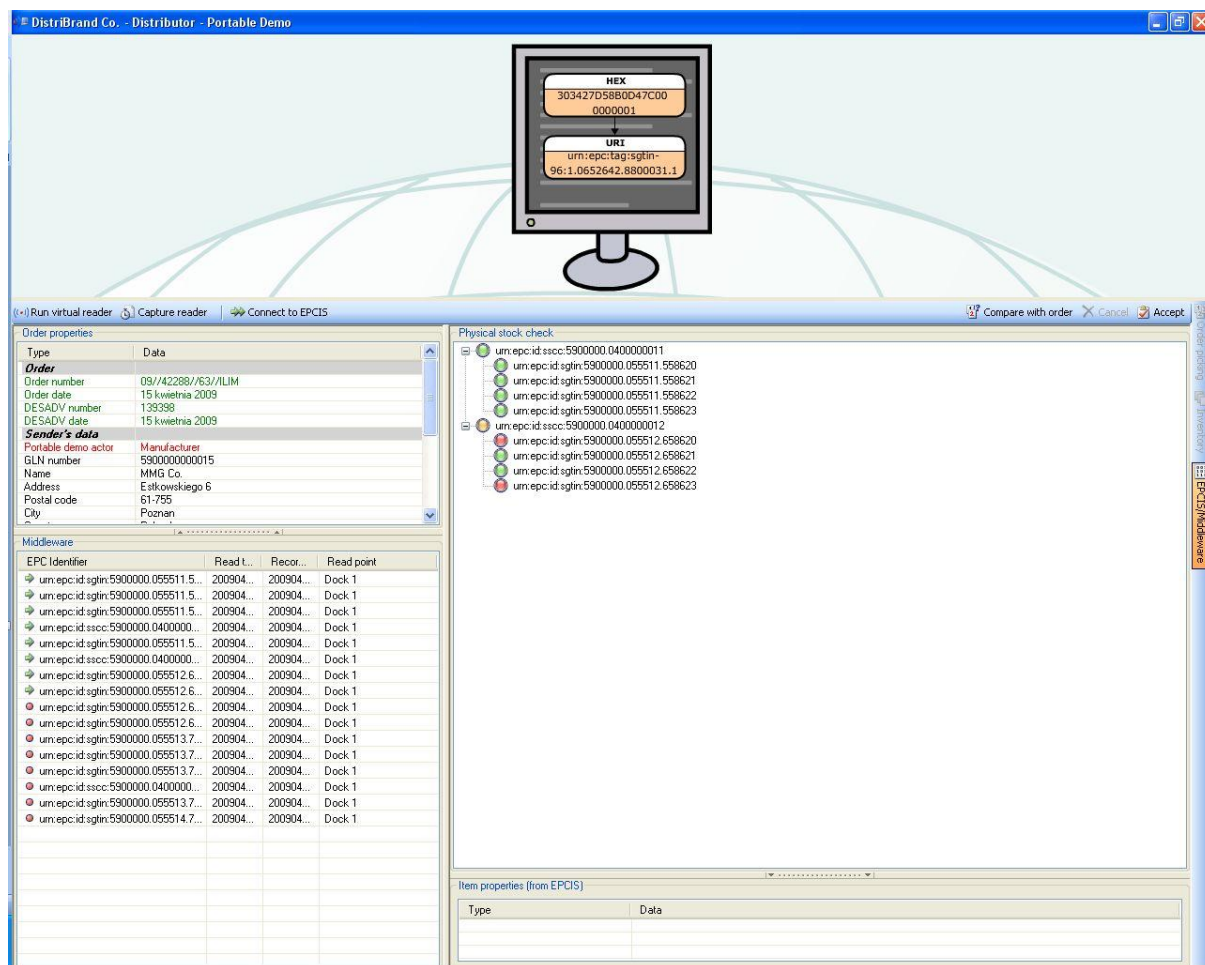
The message informs you that the batch of goods sent from the first location has already reached its destination and acceptance of the delivery may follow. Further stages of the process virtually involve repeating the actions performed at the manufacturer's location. The first step is the need to change the view to “EPCIS/Middleware” and to take the control over the reader by clicking “Capture reader”. The next step is to run the virtual reader and transport the pallets received through the gate.



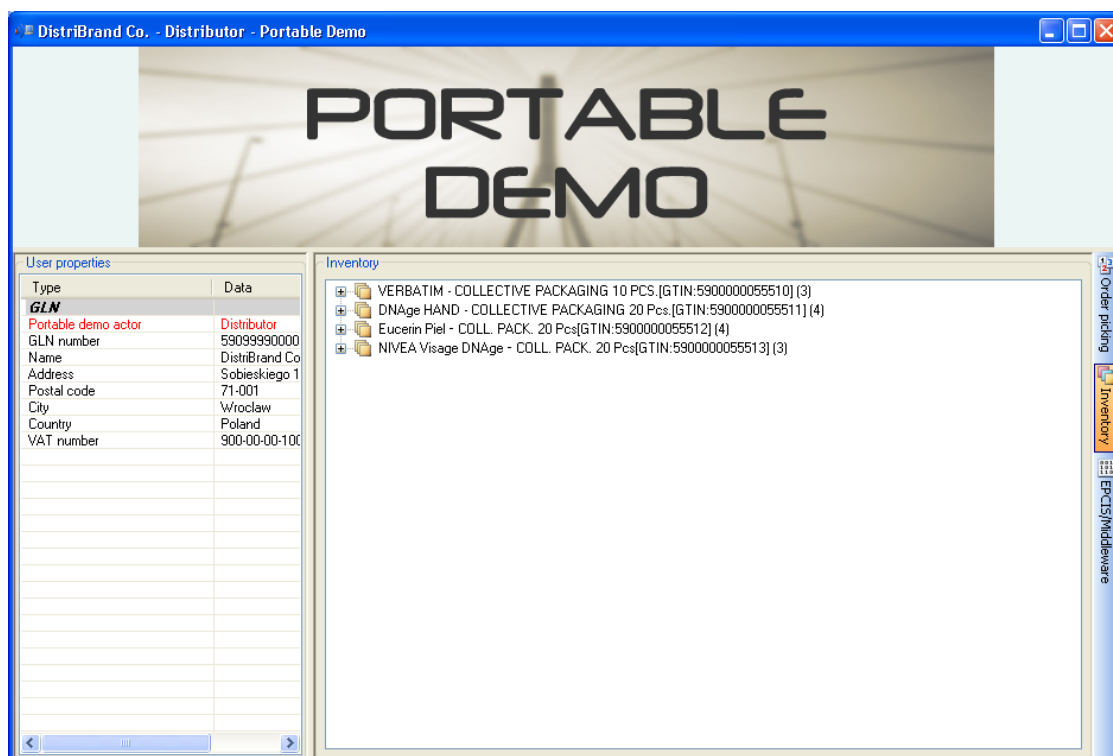
Analogously, EPC numbers read appear in the “Middleware” preview window.

EPC Identifier	Read t...	Recor...	Read point
urn:epc:id:sgtin:59000000.055511.5...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055511.5...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055511.5...	200711...	200711...	Dock 1
urn:epc:id:sscc:59000000.0400000...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055511.5...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055512.6...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055512.6...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055512.6...	200711...	200711...	Dock 1
urn:epc:id:sscc:59000000.0400000...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055512.6...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055513.7...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055510.4...	200711...	200711...	Dock 1
urn:epc:id:sscc:59000000.0400000...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055510.4...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055513.7...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055510.4...	200711...	200711...	Dock 1
urn:epc:id:sgtin:59000000.055513.7...	200711...	200711...	Dock 1

Clicking the “Connect to EPCIS” button is tantamount to verifying whether the readouts are correct and downloading descriptions of goods from the manufacturer's EPCIS server, which is visualised in detail in the animation accompanying this process.



The last step is the actual acceptance of the delivery by clicking “Accept”. If the acceptance is approved, the view will automatically change to “Inventory”.



All goods which have previously been sent by the manufacturer appear in our warehouse.

The subsequent stages of the presentation involve:

- preparing shipment for the client,
- shipment,
- acceptance of the goods on the part of the client.

All those processes are carried out based on the principles presented above.

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Appendix A: Programming RFID Tags using CAEN A948EU reader

A CAEN reader is accompanied by an installation CD with software and technical documentation. Having inserted the CD into the drive, install *CAEN RFID Demo*. The Installer will send shortcuts to the following three applications to the desktop:

- *CAEN RFID Java Demo*
- *CAEN RFID Show*
- *CAEN RFIDTest*

Programming RFID tags is possible both using *CAEN RFID Java Demo* and *CAEN RFID Show*. Given that *CAEN RFID Show* seems to be easier to handle, the below description of RFID tag programming will be presented based on the use of this application.

Once you have started the program, the following view appears:



In order to start working with the program, first connect to the CAEN reader. Use the command *Connect* in the *File* menu.

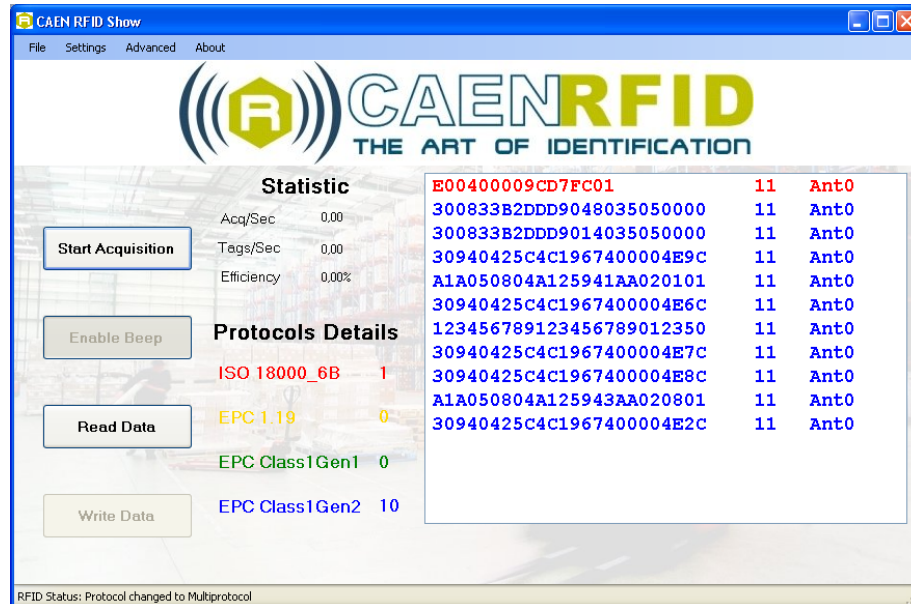
You can connect to the reader based on communication via the local network (TCP/IP) or the PC communication ports (RS232).

If the RS232 communication port is used, select **RS232 Connection** from the drop-down menu and enter the name of the communication port (e.g. COM1, COM2, etc.) in the **RS232 Port** field. If you use Ethernet connection, you must select **TCP/IP Connection** and enter the reader IP address in the

TCP/IP Address field (default IP: 192.168.0.125). Another step is to select the communication protocol for the reader and the RFID tags read. To do this, select:

Settings >> SetProtocol >> Multiprotocol

Such a setting enables any RFID tags to be read irrespective of the standard of their performance.

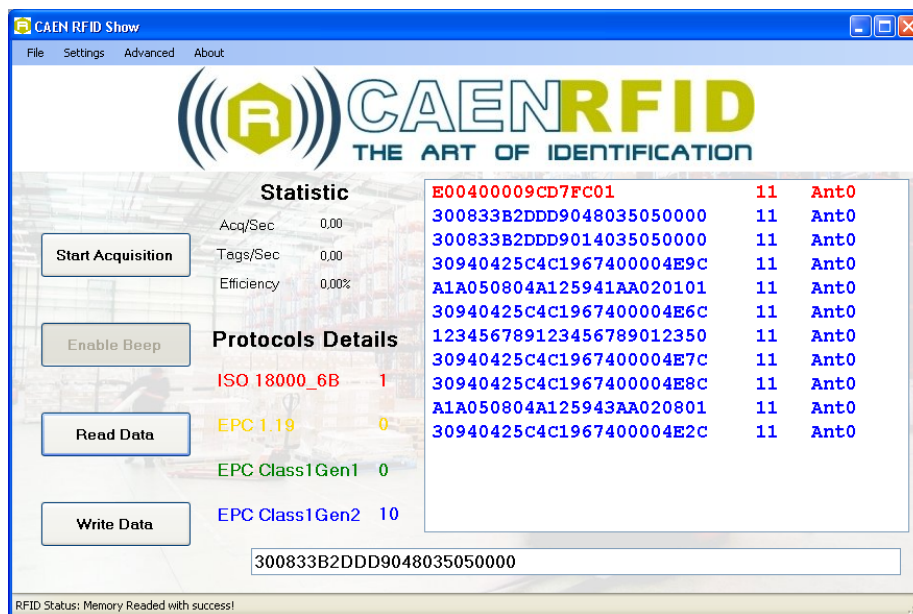


Start Acquisition

causes all RFID tags in the readout field to become visible in the right-hand side panel. In order to check whether their tags are correct, the manufacturers save an individual number in them and then check whether it has been read correctly. In practice, even new EPC Gen2 labels will have a 96-bit number in their memory which can easily be replaced with a different one using the program described. To this end, select the number you wish to replace with your own from the list on the right-hand side.

E00400009CD7FC01	11	Ant0
300833B2DDD9048035050000	11	Ant0
300833B2DDD9014035050000	11	Ant0
30940425C4C1967400004E9C	11	Ant0
A1A050804A125941AA020101	11	Ant0
30940425C4C1967400004E6C	11	Ant0
123456789123456789012350	11	Ant0
30940425C4C1967400004E7C	11	Ant0
30940425C4C1967400004E8C	11	Ant0
A1A050804A125943AA020801	11	Ant0
30940425C4C1967400004E2C	11	Ant0

Once you have made your selection, click , as a result of which a field with the read number will appear in the bottom part of the window.



In the case under consideration the last digit of the number read has been changed.

300833B2DDD9048035050001

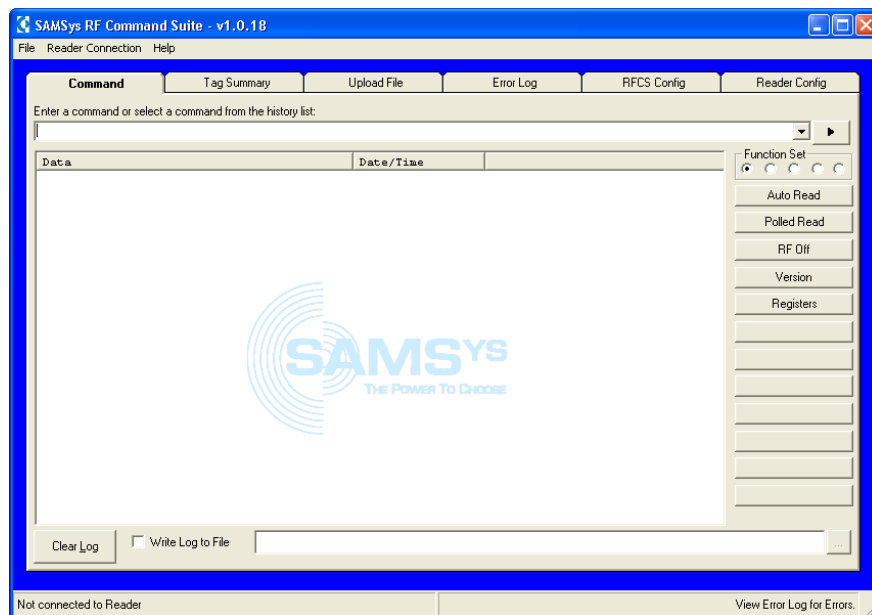
The change is approved and saved in the memory of this RFID tag by clicking . This is confirmed by another run of the Start Acquisition function.

E00400009CD7FC01	10	Ant0
300833B2DDD9014035050000	10	Ant0
30940425C4C1967400004E2C	8	Ant0
30940425C4C1967400004E6C	10	Ant0
30940425C4C1967400004E8C	10	Ant0
300833B2DDD9048035050001	10	Ant0
123456789123456789012350	10	Ant0
A1A050804A125943AA020801	9	Ant0
A1A050804A125941AA020101	8	Ant0
30940425C4C1967400004E7C	10	Ant0
30940425C4C1967400004E9C	8	Ant0

Programming RFID tags using *CAEN RFID Java Demo* takes place in an analogous fashion to the one described above.

Appendix B: Programming RFID EPC Gen2 tags using SAMSys MP9320 v2.8e reader

The SAMSys RF Command Suite is a Microsoft Windows application that provides a Graphical User Interface (GUI) for SAMSys RFID Reader Products. RF Command Suite can communicate with all SAMSys readers through the Ethernet (TCP/IP) port or the RS-232 serial port. After startup, the Command interface is displayed. As shown in the figure, this interface provides a command line for sending CHUMP (Comprehensive Heuristic Unified Messaging Protocol) commands to a reader and a log window to view all data received from the reader.



Three CHUMP commands can be used to write to an EPC1, Gen2 tag: **Wa**, **Wt**, and **Wv**. **Wa** writes to any tag in the field and is typically used to write the EPC ID to tag. **Wt** writes to a specific tag, as defined in the input parameter list, and is typically used to write to user data on a tag. **Wv** is a multifunction command that erases, writes, and verifies a tag.

Using the Wa Command

The format of the **Wa** command is as follows:

```
}Wa,a:<blk addr>,b:<blk data>[,l:<# blks>][,s:<offset>]
[,f:<xxx>]!
```

where:

a:<blk addr> is the block address (0 by default). For EPC1, Gen2

0=Reserved,1=EPC, 2=TID, 3=USER memory bank

b:<blk data> is the block data to write. Must be a 16-word multiple.

l:<# blks> is the length in 16-bit words. Defaults to length of data if missing.

s:<offset> is the offset to start the write (EPC1, Gen2 only). Defaults to 0 if.

f:<xxx> is protocol specific flag data. Set f=1 for read back/verify. EPC1, Gen2 tags provide SUCCESS/FAIL feedback. Defaults to 0.

To write an EPC ID value of 332233445566778899aabbcc onto a tag with the Protocol Control field set for a 96 bit tag, enter:

```
}wa,a:1,s:2,b:332233445566778899aabbcc!
```

To add the length field, enter:

```
}wa,a:1,s:2,b:332233445566778899aabbcc,l:6!
```

To request a read/verify cycle following the write operation, enter:

```
}wa,a:1,s:2,b:332233445566778899aabbcc,l:6,f:1!
```

In order to write an EPC ID to a blank tag, the Protocol Control bits must also be set. This can be accomplished in a single write command since the Protocol Control bits are contained in the same memory bank as the EPC ID. Following the previous example, the command would include setting the Protocol Control to 3000 as follows:

```
}wa,a:1,s:1,b:3000332233445566778899aabbcc!
```

The Kill and Access Passwords are contained in the Reserved Memory bank. Each password can be written with separate **Wa** commands or a single command:

To write a 32-bit Access password at offset 2, enter:

```
}wa,a:0,s:2,b:55667788!
```

To write both Access passwords with a single command, enter:

```
}wa,a:0,b:3322334455667788!
```

Using the **Wt** Command

The **Wt** command can also be used to write the Kill and Access passwords and the TID and User Memory banks. The **Wt** command requires the use of the EPC ID of the tag. The format of the **Wt** command is as follows:

```
}Wt, b:<data> ,d:<tag id> a:<block address >[,l:<length>]  
[,s:<offset>][, f:<flags>]!
```

where:

a:<block address> is the block address (0 by default). For EPC1, Gen2

0=Reserved,1=EPC, 2=TID, 3=USER memory bank

b:<blk data> is the block data to write. Must be a 16-word multiple.

d:<tag ID> is the tag identification.

l:<# blks> is the length in 16-bit words. Defaults to length of data if missing.

s:<offset> is the offset to start write (EPC1, Gen2 only). Defaults to 0 if missing.

f:<xxx> is protocol specific flag data. Set f=1 for read back/verify. EPC1, Gen2 tags provide SUCCESS/FAIL feedback. Defaults to 0.

To write the Kill password to a tag with EPC ID= 332233445566778899aabbcc, enter:

```
}wt,d:332233445566778899aabbcc,a:0,b:33223344!
```

Using the Wv Command

The Wv command is a multifunction command that performs any erase, write, and verification needed to program a tag in a specific protocol. The command can also lock the data.

The format of the **Wv** command is as follows:

```
}Wv,b:<EPC data>,k:<kill code>,c:<access code>,  
i:<TID data>,u:<user memory>,m:<lock mask>!
```

where:

b:<EPC data> is the EPC ID to write to the tag.

k:<kill code> is the kill code to be written to the reader.

c:<access code> is the access code to be written to the tag.

i:<TID data> is the TID data to be written to the tag. The number of bytes varies depending on the tag.\

u:<user memory> is the user data to be written to the tag. The number of bytes varies depending on the tag.

m:<lock mask> is the lock mask to indicate which tag field to lock. Each 4-bit nibble in the mask indicates the lock state to apply to a specific part of the tag. A mask nibble value of 1 locks the specific part of the tag. A mask nibble value of 0 indicates no lock is applied. For the EPC1-2, the low order bit of each nibble indicates if the permalock bit should be set, and the next higher bit indicates if the pwd-write bit should be set. For the EPC1-2 protocol, the mask nibbles apply to the following fields:

Mask Nibble	4	3	2	1	0
Tag Field	User memory	TID data	Access code	Kill code	EPC data

To write an EPC ID value of 332233445566778899aabbcc and verify the write, enter:

```
}wv,b:332233445566778899aabbcc!
```

To write the EPC data, a kill code of A391742F, an access code of 73D97412, and lock the EPC data and access code, enter:

```
}wv,b:30112233445566778899aabb,k:A391742F,c:73D97412,m:00202!
```

In this example, the lock mask of **m:00202** = 0010 0000 0010b and indicates that a pwd-lock is requested for nibble 2 (access code) and a pwd-lock is requested for nibble 0 (EPC data).

Appendix C: Programming RFID Tags using SICK RFI641 reader

The Sick RFI641 RFID reader can be connected with RS-232 or Ethernet interface, in the latter case the user can access the reader using the web browser. After inputting the IP address of the reader in the web browser (for example Mozilla Firefox or Internet Explorer) the following page appears.



The user needs to login as admin by clicking the “Login” link on top-left side of the page. The default username is ‘admin’ with password ‘readeradmin’. Having logged in, in order to read the tags within reader read range, the user needs to do the following:

1. Go to ‘View Tags’ under the ‘System Status’ section.
2. Change the Reader Operating Mode to ‘polled’ by selecting appropriate position from the dropdown list.
3. Start the reading process by pressing ‘Start’ on the bottom of the page.
4. The results of the readout will appear under the ‘Tag Database Display’ section and will be refreshed every 5s.

Pressing ‘Stop’ can stop the reading process. Please note that the results are stored in the reader’s internal database and will appear in the results list until they are cleared (by pressing ‘Purge’).

RFI641 SICK Sensor Intelligence.

Basic Advanced Status ? Help Dashboard

Logged in as: admin Logout Current Profile: test Save Manage Profiles

Reader Operating Mode

The current reader operating mode is displayed as the default item in the pulldown list. To change the operating mode, highlight and select the desired mode from the list.

polled ?

Tag Database Display

Click on the 'Start' button to begin a display of the reader tag database and continuously refresh the display every 5 seconds. The 'Stop' button stops updating the display of the reader tag database. The 'Get Once' button can be used to display the reader tag database a single time. The 'Purge' button purges all tags from the reader tag database.

Tag ID	Protocol	Antenna	Repeat Counts	First Read Time	Last Read Time
0x3055681B803635C00008861D	ISOC	1	16678	2009-04-20T08:15:23.366Z	2009-04-20T09:43:24.720Z
0x3055681B803635C00008861E	ISOC	1	6339	2009-04-20T08:15:28.335Z	2009-04-20T09:42:48.519Z

Start Stop Get Once Purge

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In order to write data to RFID tags, the command line interface must be used. It can be activated by choosing 'Command Line' under the 'Advanced' section. Commands that allow writing data to tags are described in chapter 7.15.2 (page 68) of the reader manual. In particular, to put a new EPC number on an EPC tag, the following command can be used:

```
tag.write_id(new_tag_id=[EPC_number])
```

or, if there are more tags within the reading range:

```
tag.write_id(tag_id=[old_EPC_number], new_tag_id=[EPC_number])
```

RFI641

SICK
Sensor Intelligence.

BasicAdvancedStatus? HelpDashboard

Logged in as: adminLogoutCurrent Profile: testSaveManage Profiles

C2 Interface

This page provides access to Command line interface of the reader.

Command: 10000000000000BABA1234232,new_tag_id=0xAAABBB00000000BABA123423Send

Response

tag.write_id(tag_id=0x00000000000000BABA1234232,new_tag_id=0xAAABBB00000000ok

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Appendix D: Programming RFID Tags using Impinj Speedway UHF Gen 2 reader

The Impinj Speedway UHF Gen 2 reader supports four ways of communication: the web-based interface, the command line interface, the Mach1 interface and the LLRP interface. To use the first one of them, the IP address of the reader must be entered into the browser (for example Mozilla Firefox or Internet Explorer). If the connection is successful, user will be prompted to log onto the reader. The default username is 'root' with password 'impinj'. If the operation is successful, Reader Status landing page should appear.

The screenshot displays the web interface of the Impinj Speedway UHF Gen 2 reader. The top navigation bar includes links for Status, Configuration, RFIDemo, and Help. The IP Address is 192.168.5.106, and the user is root with root level. The main content area shows the Reader Status page, which includes a sidebar with links to Network Statistics, Advanced, RFID Statistics, Logging Events, and Internal Log Events. The main content area displays the Reader Summary table.

Reader Summary	
Hostname	Speedway-10-08-85
IP Address	192.168.5.106
MAC Address	00:16:25:10:08:85
Serial Number	370-08-17-0323
Firmware Version	Octane 3.0.1.240
Hardware Rev	050-01.00004
System Time	Sat Feb 19 16:21:35 UTC 2000
Up Time	23 hours 7 minutes
Bootloader Version	1.4.2

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To read the tags within the range of the reader, the user should do the following:

1. Navigate to the Speedway reader's RFID demonstration ('RFIDemo') web page.
2. Select a region and an operational mode from the list.
3. Adjust the reader settings if needed.
4. Navigate to 'Operation' web page.
5. Click the 'Start'/'Stop' toggle button to begin reading tags within range of the reader. The 'Clear' button clears the results of the inventory operation that commenced with 'Start'.

As tags are read, their EPC numbers appear in the primary window of the 'Operation' screen in white fields, which fade to blue after not being seen by the reader within the last ~10 seconds.

Settings

Inventory Filter

Tag Access

[Operation]

Read Rate (tags/sec)

80

Running Time (hh:mm:ss)

0:00:01

EPC	Count	Last Status
30003408303030303018010000	24	
30003408303030303015010000	24	
30000000000000000000000000FBBBB	45	
30000000033B2DDD90140000FABCD	45	
300000000000000002543654565637	22	

Auto Cont...

☒

Total Tags

5

Act Once

☒

Total Active Tags

5

Read TID

☐

Stop

Conti...

Clear

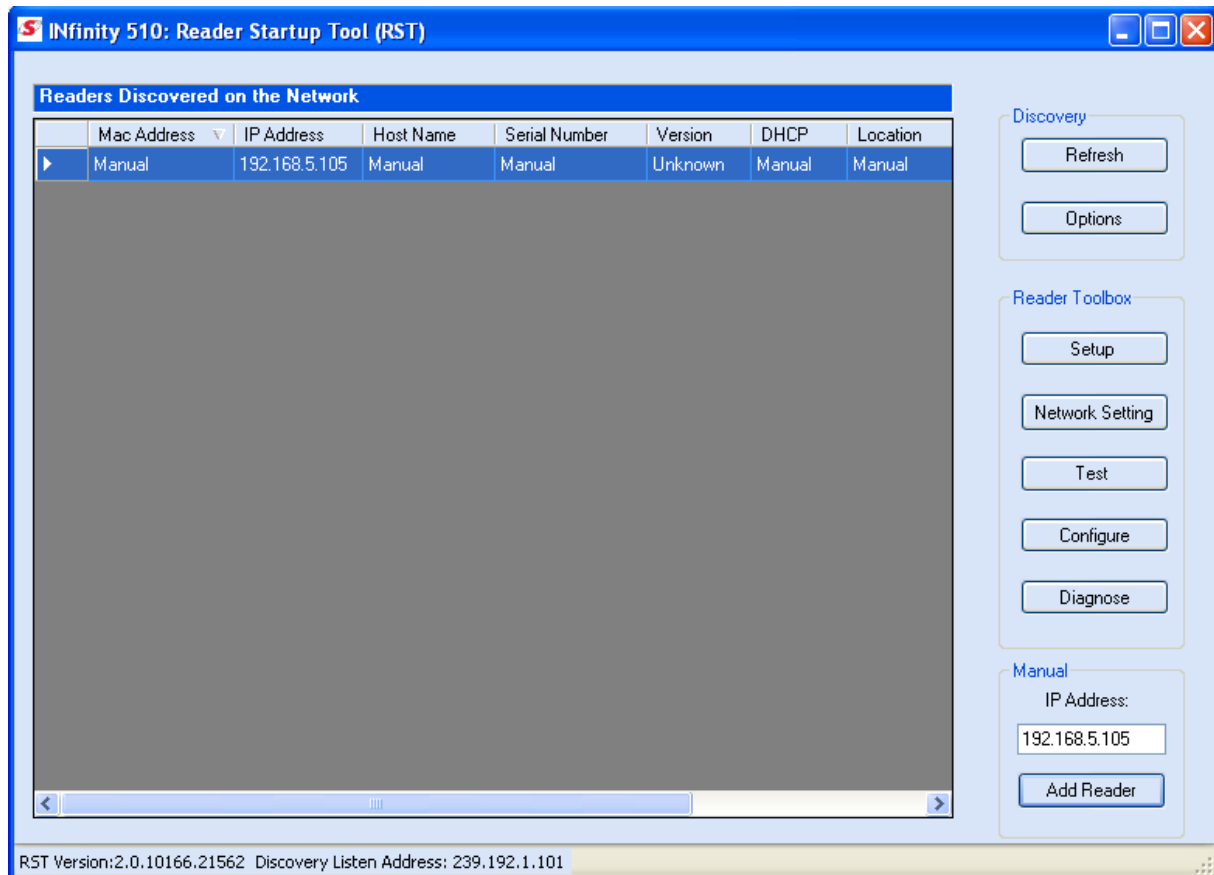
In order to write data to RFID tags, 'Halt Filter' must be defined. This operation can be performed in 'Tag Access' web page. This page can be accessed only if the reading operation is not running. The detailed process of defining criteria for 'Halt Filter' and 'Action' sections can be found in chapter 6.5 (page 43) of the reader manual.

Once the filter is defined, the user should navigate back to 'Operation' web site. The use of 'Halt Filter' should be indicated by text ****Halt Filter**** appearing at the top of the screen. The last step is to make sure the 'Act Once' check box is selected. It directs the reader to execute the action indicated in the 'Tag Access Action' setting (read, write, lock, kill, etc.) only one time. If the operation is successful (see 'Last Status' column in the primary read window), the reader will continue the inventory or halt operation, depending on the status of the 'Auto Continue' setting. If the 'Act Once' setting is not enabled, and the action indicated is a write, the reader will write the tag over and over in a continuous loop.

** Halt Filter **		Running Time (hh:mm:ss)	0:00:00
EPC		Count	Last Status
3000340830303030303018010000		14	
300034083030303030303015010000		10	
30000000033B2DDD90140000FABCD		23	
30000000000000000000000000FAAAA		1	Write Success

Appendix E: Programming RFID Tags using Sirit INfinity 510 reader

Sirit INfinity 510 reader supports both RS-232 and Ethernet interfaces. When using the latter, user can choose between accessing the reader through web browser or dedicated application. Because the web interface is practically identical to the one of SICK RFI641 reader in appendix C, the method of programming tags described below will be based on INfinity 510: Reader Startup Tool (RST) and INfinity 510: Reader Test Tool (RTT) programmes.



After successfully installing the application, user should launch INfinity 510: Reader Startup Tool by selecting Start>>Programs>>Sirit>> INfinity510>>Reader Startup Tool. To add reader to the displayed in the main window, user should enter corresponding IP address into the text box located on the right and then click 'Add Reader' button. New position will be added to the list of readers discovered on the network. This list can also be populated automatically using the 'Discovery' feature described in chapter 5 (page 22) of the reader user's guide. Next, user should select the reader to connect to from the list and click 'Test' button. If the connection is successful, a window of INfinity 510: Reader Test Tool application should be displayed.

The next step is to log in using 'Login Info' panel on the right side of the window. The default login is 'admin' with password 'readeradmin'. After successfully performing this operation, user can read tags within the range of the reader by navigating to 'Tag Performance' tab and selecting 'Start' (continuous read) or 'Get Once' (single read) button.

INfinity 510: Reader Test Tool (RTT)

General Page | **Tag Performance** | Tag Management | Macros | Event Handling

Performance Information

Total Unique Tags: 2 Tag Read Count: 146 Cumulative Rate: 18.25 Current Rate: 18 **Purge and Clear Stats**

Polling

Polling Interval(ms): 1000 Total Poll Time(ms): 0

Tag Acquisition Analysis

Min: 73 Avg: 73 Max: 73

Scan Operation

Scan Time(ms): 100 **Scan Tags**

Operating Mode

☒ Active ☐ Standby

Start **Stop** **Get Once** ☐ Purge every poll ☐ Beep On

TagId	Type	Total	Rate
0x00003382DD90140000FABCD	ISOC	73	9.12
0x00000000000000000000FDDDD	ISOC	73	9.12

File Name: C:\Program Files\Siri\INfinity 510 RST\taglist.csv ☐ Save

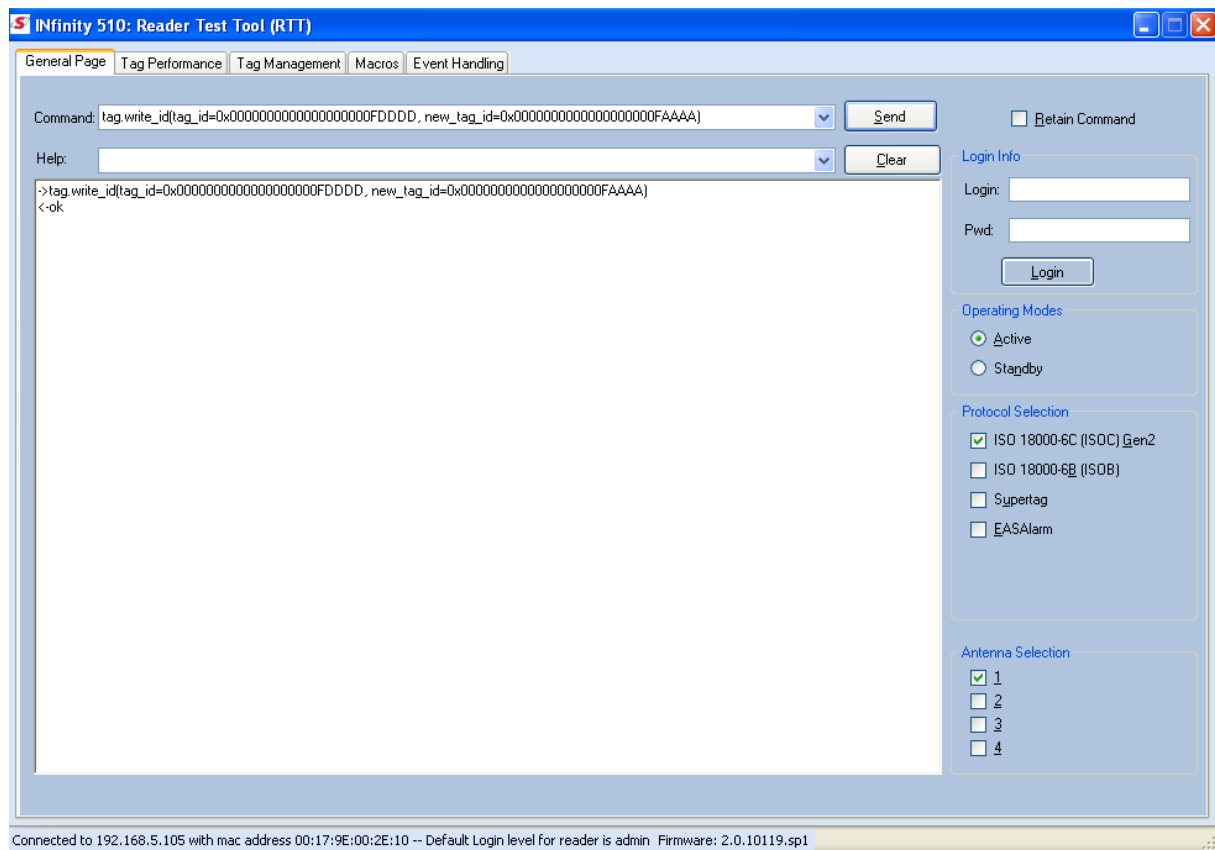
Connected to 192.168.5.105 with mac address 00:17:9E:00:2E:10 -- Default Login level for reader is admin. Firmware: 2.0.10119.sp1

In order to write data to RFID tags, the command line interface on 'General Page' tab must be used. Commands that allow writing data to tags can be found in chapter 4 (page 26) of the Infinity 510 Protocol Reference Guide. In particular, to put a new EPC number on an EPC tag, the following command can be used:

```
tag.write_id(new_tag_id=[EPC_number])
```

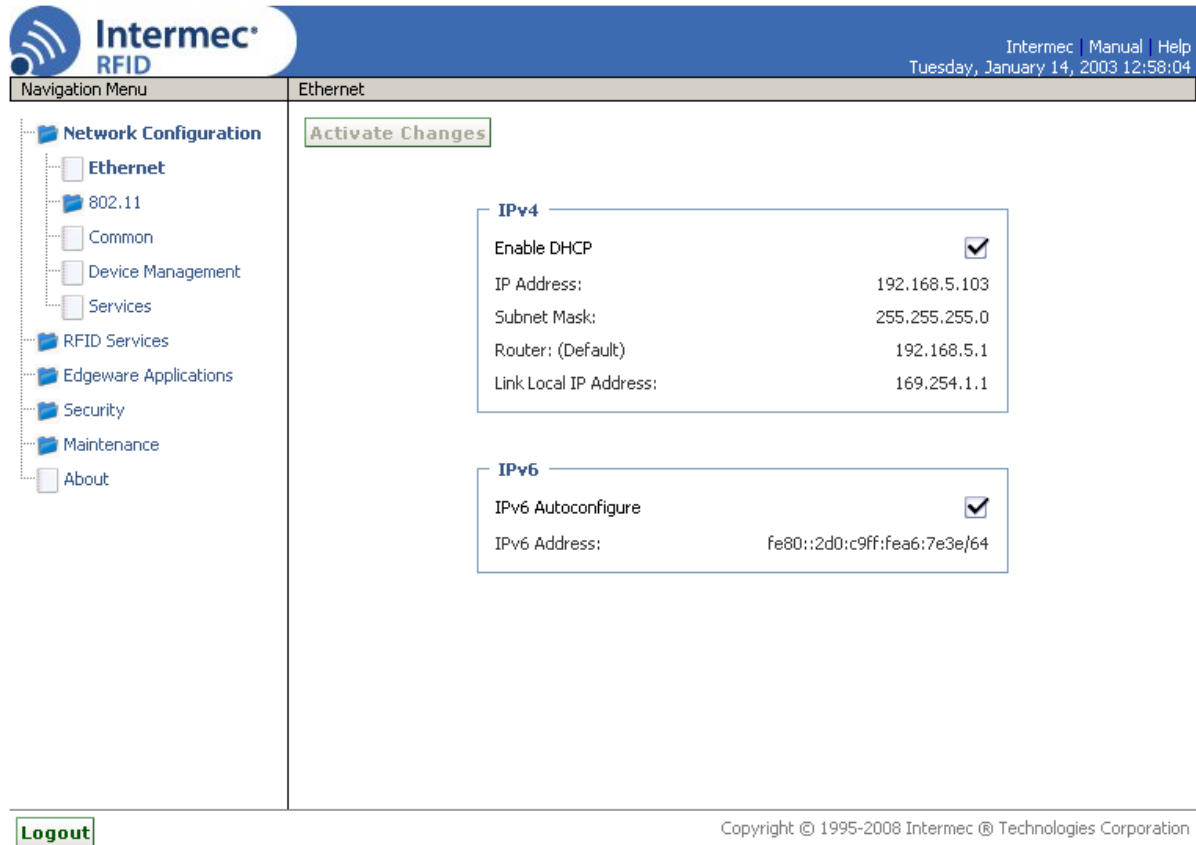
or, if there are more tags within the reading range:

```
tag.write_id(tag_id=[old_EPC_number], new_tag_id=[EPC_number])
```



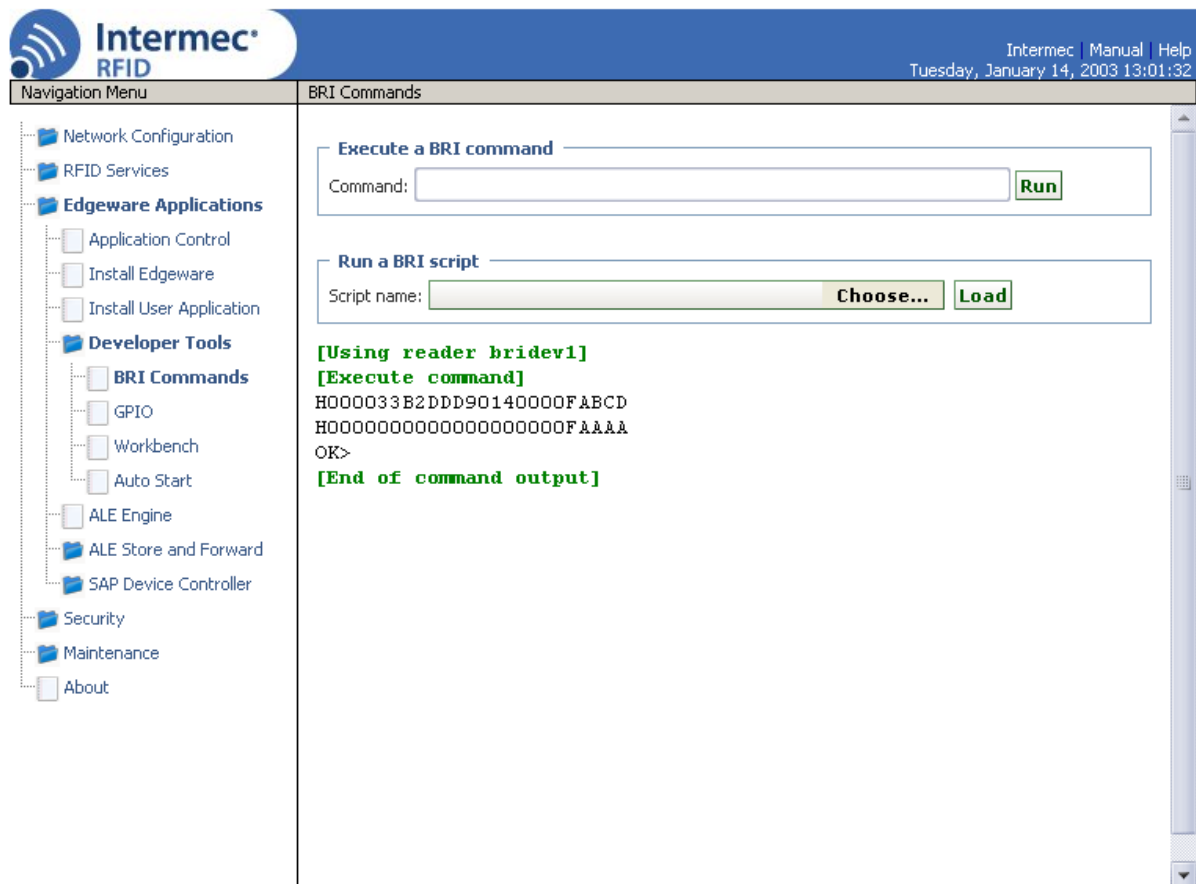
Appendix F: Programming RFID Tags using Intermec IF61 reader

Intermec IF61 reader can be connected to via Wi-Fi, Ethernet or RS-232 interface. To use any of the first two, the user should type the reader's IP address in the web browser. To perform any operation through the reader's web interface, authentication is required. The default username is 'intermec' with password 'intermec'. After logging in, the main page should appear.



In order to read the tags within reader read range, the following steps must be followed:

1. Select 'Edgware Applications' in the navigation menu on the left.
2. Select 'Developer Tools'
3. Select BRI Commands.
4. Type 'READ' in the 'Command' text field and click 'Run'. Specification of available read commands can be found in chapter 4 of reader BRI Programmer's Reference Manual.
5. The results of the readout will appear on site.



Writing data to RFID tags is similar to the reading process. The list of WRITE commands along with examples of use can be found in chapter 4 of reader's BRI Programmer's Reference Manual.

For example, the command

```
WRITE HEX(14,2)=HAF AF WHERE TAGID=HE2006001015FDFAA
```

changes last four hexadecimal values of EPCID of RFID tag with TAGID= HE2006001015FDFAA. Successful WRITE operation returns WROK result.

The screenshot displays the Intermec RFID software interface. On the left is a navigation menu with categories like Network Configuration, RFID Services, Edgeware Applications, Developer Tools, Security, and Maintenance. The 'Developer Tools' category is expanded, showing 'BRI Commands' as the selected option. The main window title is 'BRI Commands'. It contains two sections: 'Execute a BRI command' with a text input field containing 'WRITE HEX(14,2)=HAF AF WHERE TAGID=HE2006001015FDA' and a 'Run' button; and 'Run a BRI script' with a 'Script name:' label, a text box, and 'Choose...' and 'Load' buttons. Below these, green text shows the execution output: '[Using reader brudev1]', '[Execute command]', 'H00000000000000000000FBBBB WROK', 'OK>', and '[End of command output]'. The top right corner shows the date and time: Tuesday, January 14, 2003 13:28:16.

Appendix G: Troubleshooting

No	Problem	Possible causes	Solutions
1	<i>Portable Demo</i> client cannot connect to server	Computers within the network do not belong to the same working group	You should set the same working group for all computers within the local network
2	<i>Portable Demo</i> client cannot connect to the server	Some computers have authorisation settings at the domain level	You should share a database folder using the mapping of the network disc and indicate it in the server program. Network computers should be logged onto the server using: <pre>Start>>Run>>\\A.B.C.D</pre> where A.B.C.D is the IP address of the server. Warning! When logging onto the server, you must specify user login and password. The process of mapping the network disc is described in the Windows Help.
3	<i>Portable Demo</i> client cannot connect to server	Problem reading PDData.mdb database file due to error in the default template or lack of network connection.	Make sure your network connection is functional. Using the server function: <pre>Database>>Reset database to template</pre> reset the database template and restart your server and try to make the connection again.
4	<i>Portable Demo</i> client cannot connect to server	Problem reading the PDData.mdb database file due to system error.	Restart the server and try to make the connection again.
5	<i>Portable Demo</i> client cannot connect to server	Unknown problem with network configuration.	Contact your local IT department to properly configure your network connection.
6	<i>Portable Demo</i> server generates a system error and shuts down	Problem of program compatibility with other software installed in Windows.	Restart your computer and try to run server application again. In case of failure it may be necessary to reinstall Windows system.
7	<i>Portable Demo</i> client generates a system	Problem of program compatibility with other	Restart your computer and try to run server and client application again.

	error and shuts down.	software installed in Windows.	In case of failure it may be necessary to reinstall Windows system.
8	Other errors	Unknown causes.	Send information on the error detected including a detailed error description to the following e-mail address: info@bridge-project.eu

Appendix H: Creating a custom RFID reader plugin

A custom plugin can be created as a C# library. Since certain programming skills are required, the following guide assumes that the user is familiar with creating software using the Microsoft Visual Studio environment.

Create a new project

Create a new project, for example using the Microsoft Visual C# 2008 Express Edition. Go to:

File >> New Project... >> Class Library

Add reference to the interface

Add reference to the plugin interface, which is located in the PDPluginHost.dll file inside the directory where the Portable Demo – Server is installed:

1. Make sure the “Solution Explorer” view is enabled (*View >> Solution Explorer*)
2. Click with the right mouse button on the “References” node and choose “Add Reference...”
3. Go to “Browse” tab and navigate to the PDPluginHost.dll file, select it

Write the code for handling the RFID reader

In order to create the plugin, you need to define 2 classes: one defining the reader (called here “RFIDReader_Test”, as an example), the other defining the plugin itself (called here “Plugin”). The following description is based on the source files which you may download together with the application.

The “RFIDReader_Test” class needs to implement the “RFIDReader” interface, with the following methods:

Method	Arguments	Return value	Description
[the same as class name]	RFIDReaderConfig	-	Constructor, accepts RFIDReaderConfig as an argument
ShowConfig	-	void	Displays the configuration window
StartRead	-	void	Is called when the read process starts, it is recommended to include the base method
StopRead	-	void	Is called when the read process stops, it is recommended to include the base method

The “Plugin” class needs to implement the “IRFIDPlugin” interface, with the following methods:

Method	Arguments	Return value	Description
[the same as class name]	-	-	Constructor
InitReader	RFIDReaderConfig	RFIDReader	Returns a new instance of an RFID reader
Initialize	-	void	Can be empty
Dispose	-	void	Can be empty
ShowAbout	-	void	Display an information window about the plugin

and the following members:

Member	Type	Description
PluginName	string	Short name of the plugin
PluginInfo	string	Description of the plugin
ReaderPlugCode	string	Plugin identifier, cannot be the same as the identifiers of other plugins

The “RFIDReaderConfig” class contains a “Settings” member of type “ArrayList”, which can be used to store any information related to the plugin/reader, as long as the first one is the reader’s IP address.

Build and install the library

To build the library go to

Build >> Build Solution

This will result in a *.dll file being generated, in our case TestReader.dll (the name depends on the name of the file with the classes definitions). By default it is located in the *bin/Debug* folder.

To install the plugin, copy the *.dll file to the “plugins” folder in the Portable Demo – Server installation folder. When you run the PD Server for the next time, the plugin will be automatically available on the drop down list.

Reader's configuration

Identification
Name:

Plugin configuration
Plugin name:
CAEN Readers
Intermec Readers
LLRP Readers
SAMSys Readers
SICK Readers
Sirit INfinity 510 Reader
Test

Plugin info

About

Mapping
Mapping type:
User:

Cancel OK